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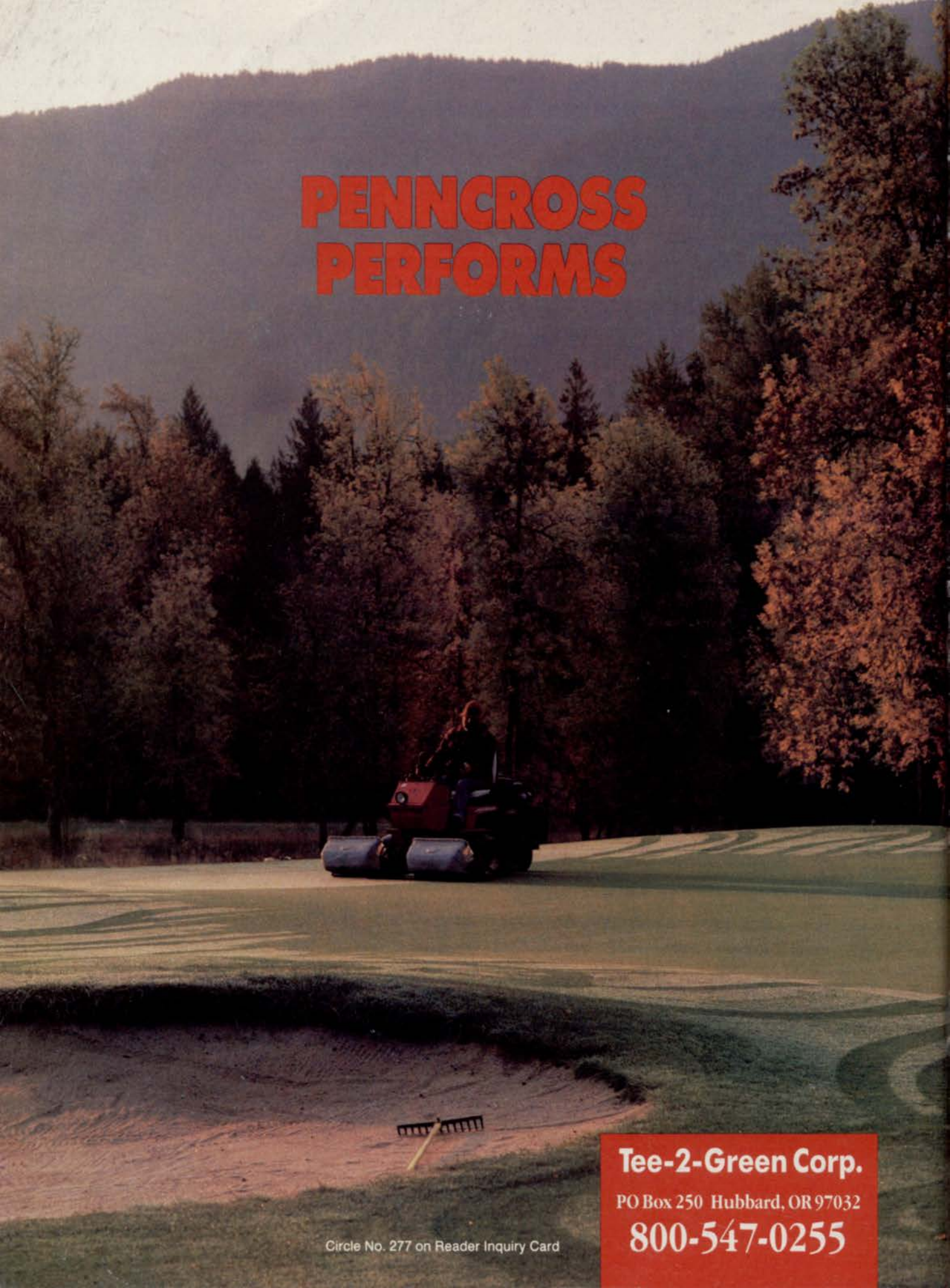

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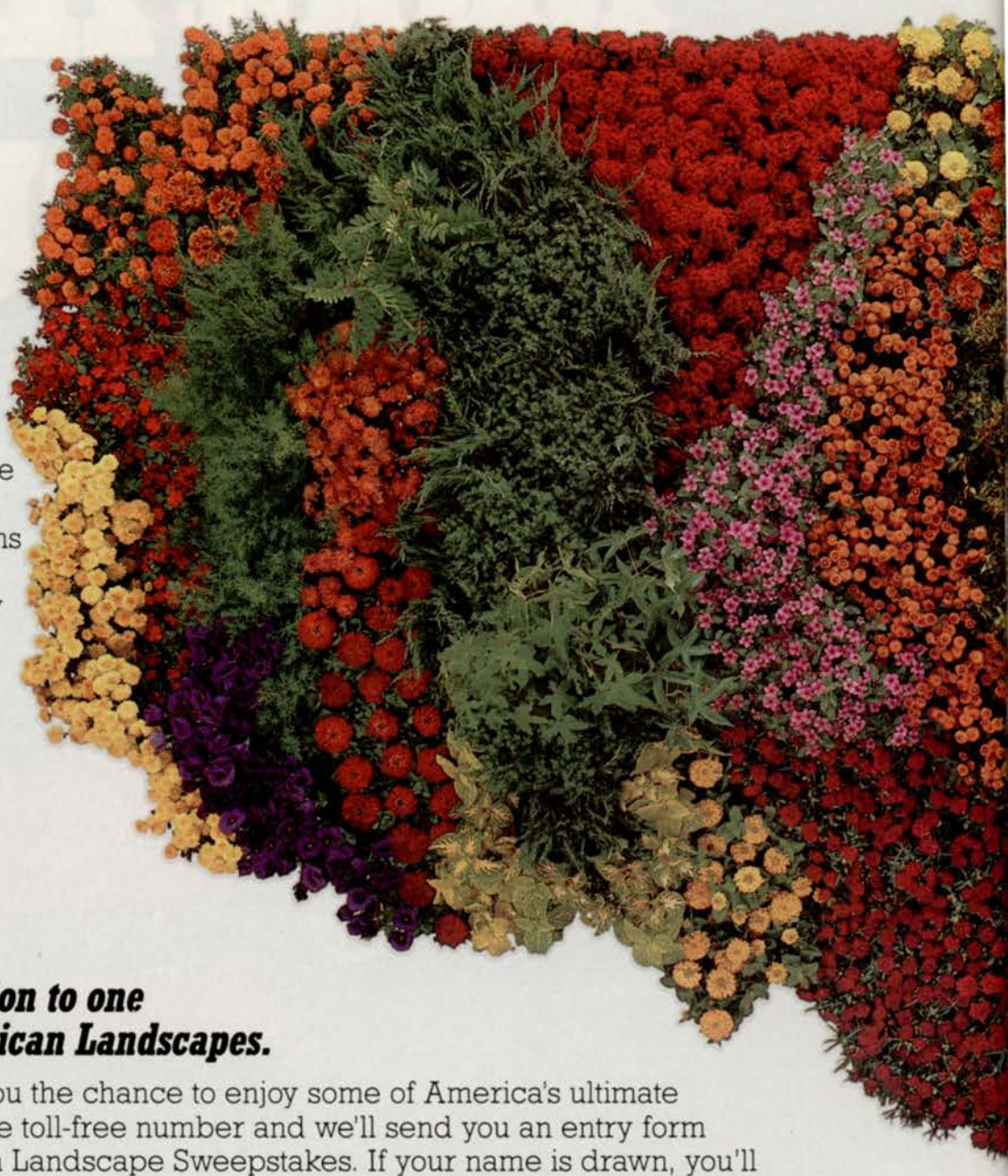

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THE GREAT AMERICAN LANDSCAPE
SWEEPSTAKES

Circle No. 121 on Reader Inquiry Card

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Mg. Editor

Terry McIver
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LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Edgell Communications, Inc. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising Offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130, 111 East Wacker Drive, Chicago, Illinois 60601 and 3091 Maple Drive, Atlanta, Georgia 30305. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: $25 per year in the United States: $50 per year in Canada. All other countries: $100 per year. Single copies (pre-paid only): $2.50 in the U.S.; $5.00 in Canada; elsewhere $10.00; add $3.00 for shipping and handling per order. Office of publication: Edgell Communications, Inc., 1 East First Street, Duluth, Minnesota 55802. Second class postage paid at Duluth, Minnesota 55806 and additional mailing offices. Copyright© 1988 by Edgell Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

POSTMASTER: Send address changes to LANDSCAPE MANAGEMENT,
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AS I SEE IT...

Employee problem?

So, Mr. LCO, you've set up an organization where every employee is familiar with corporate policies and their required duties. You've put together an efficient hierarchy of supervisors and a pleasant work environment. Your employees look upon each other as friends, they're making competitive salaries and enjoying job security. Well, that's nice of you, but you haven't given them anything they don't *expect*.

Today these work characteristics represent mere environmental factors, not the motivating elements you may have envisioned them to be. That was the eye-opening message delivered by green industry consultant Mike Hiller at the Landscape Exposition in Nashville recently. "If you've done all of this... it's no big deal," says Hiller. "That's your job. These things are only important if you don't have them or if you do and they don't work."

In the employee's mind, says Hiller, the opposite of satisfaction is not dissatisfaction but apathy. To motivate people, you need to present them with challenging work where they can achieve recognition for their achievements. They want to feel like an integral part of your company and that they can grow and develop as a person as well as an employee while under your roof.

It has become obvious after meeting many of you in the past several months that attracting and keeping employees is a major concern. "Kids are making $8 an hour at McDonald's, for crying out loud," is a statement I've become too familiar with.

Finally in Nashville an answer emerged. And that is, as far as money is concerned, you get what you pay for. If a teenager can make $8 an hour slinging hash and your going rate is $5.50, you'll never have the quality employees you think you deserve.

To get them, keep your recruiting channels open year round, notes Hiller, by staying in touch with others in the industry, schools and employment agencies. Often your best recommendations will come from people presently in your ranks. Why not offer them a bonus for all their referrals that pan out?

Next, develop a thorough, professional interviewing process where you follow up on the recommendations of a branch manager. A simple rule: the more time you spend in the interview process the better off you're going to be.

Then, once you have good people on board at a competitive wage, keep their life interesting by challenging them to be the best worker on the team. Give them an award when their crew goes through a season without damaging equipment or tickets to a football game when they successfully attract new customers.

It's often difficult to justify spending extra money for anything these days, but remember that there is more potential in any employee than there is in the best piece of equipment. By tapping that potential you'll increase production and get the additional benefit of enriching someone's life, as well as your own.

Will Perry

Will Perry, managing editor

LM

EDITORIAL STAFF

Jerry Roche, Editor
Will Perry, Managing Editor
Terence McIver, Associate Editor
Office: 7500 Old Oak Blvd.
Cleveland, OH 44130
(216) 243-8100

MARKETING STAFF

Dick Gore, Publisher
Office: 455 E. Paces Ferry Rd.
Suite 324
Atlanta, GA 30305
(404) 233-1817

Jon Miducki, National Sales Manager
Marsha Dover, Midwest Sales Manager
Gloria Cosby, Eastern Sales Manager
Bob Earley, Group Vice President
Office: 7500 Old Oak Blvd.
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(216) 243-8100

Robert Mierow, W. Coast Representative
Office: 1515 NW 51st Street
Seattle, WA 98107
(206) 783-0549

Tom Greney, Senior Vice-President
Office: 111 East Wacker Drive
Chicago, IL 60601
(312) 938-2344

SUPPORT STAFF

Carol Peterson, Production Mgr.
Marilyn MacDonald, Prod. Supervisor
Deb Georges, Graphic Design
Becky Gothner, Circulation Super.
Bonnie DeFoe, Directory Coordinator
Gail Parenteau, Reader Service Mgr.
Office: 120 West Second St.
Duluth, MN 55802
(218) 723-9200

David Komitau, Graphics Coordinator
Ted Matthews, Promotion Director
Office: 7500 Old Oak Blvd.
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(216) 243-8100

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Look for a sneak preview at the GCSAA show, Feb. 11-13

JOHN DEERE

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ATHLETIC TURF

Sports Turf Managers will hit Dodgertown

The Sports Turf Managers Association is sponsoring its first International Sports Turf Conference and Show at one of the finest sports complexes in the country, Dodgertown at Vero Beach, Fla.

The conference will be held Jan. 13-15, 1989. Besides valuable seminars, the conference will feature a Saturday afternoon luncheon called the "Big Dodger Blue Barbecue." The STMA's annual awards banquet will be held Saturday evening.

"We're expecting 300 to 500 registrants," claims Melissa Merritt, STMA operations assistant. (At press-time) "we have just mailed out our member information brochures and they're starting to trickle back in."

Topics of seminar talks range from irrigation and surveying to injuries and litigation to training employees. The trade show hours are Saturday 8 a.m. to 1 p.m. and Sunday 8 a.m. to noon.

The conference concludes with a special "Hour with the Pros" at the Dodgers' Holman Stadium from 11 a.m. to noon Sunday.

Amenities available to conference guests at Dodgertown are a 27-hole championship golf course, baseball fields, an Olympic-size swimming pool, tennis courts, volleyball and basketball courts and jogging trails. Vero Beach is located on the Atlantic Ocean in central Florida.

For more information, contact Merritt at the STMA, 400 North Mountain Avenue, Suite 301, Upland, CA 91786. Phone number there is (714) 981-9199.

PESTICIDES

Officials see better labels to further green industry

A recent incident involving pesticides pointed to an industry need to improve product labels.

A Columbus, Ohio, lawn care operator reportedly will not be fined for a diazinon application that killed 26 waterfowl. The Department of Agriculture official who investigated the deaths, *Lawn Care Industry* magazine reported, said the insecticide diazinon, applied in combination with fertilizer pellets, was watered in properly. Watering was prohibited by a city-wide watering ban, but a liquid herbicide was sprayed over the pellets. The label calls for "light watering."

"It's just one of those things that's not spelled out," noted Owen Spilker, who investigated for the state. "There are a lot of ambiguous statements on the labels that are going to have to be cleaned up."

Carolyn Bussey, senior regulatory specialist for Ciba Geigy, Greensboro, N.C., says the incident illustrates the point Spilker was making. She is preparing a report on the incident for the Environmental Protection Agency. "This is a very gray area," she said in the *LCI* article. "The label needs to be improved."

The Division of Wildlife, meanwhile, is conducting its own investigation.

	For Turf	Remarks
fore crabgrass and other eed seeds germinate	14 lbs. /Acre or 1 lb. /3 to 7 gals. /3000 sq. ft.	Apply befo fall. A sec ommended after the f
early fall in northern states eed germination. Consult eriment station or exten- ed specialist for date Poa s in your area and make ap- 2 weeks prior to this date	20 lbs. /Acre or ½ lb. /1 to 2 gals. /1000 sq. ft.	Should be application
pence spray in spring or n creeping speedwell is usly, there is ample soil mperature is between 65°	16 lbs. /Acre or ½ lb. /1 to 2 gals. /1000 sq. ft.	Apply spra of foliage speedwell be expect a gradual
lass seedlings have exhib- f the newly sprouted grass ches high.	14 lbs. /Acre	Allow crab the new tu

LEGISLATION

AAN receives desired funding of HSC program

The American Association of Nurserymen is doing a victory dance after convincing Congress to fully fund its Horticulture Specialties Census program, which had been targeted for elimination by the Reagan administration.

"The AAN and the Society of American Florists convinced Congress to earmark full funding at the requested $800,000 level. This is excellent news for foliage, bedding plants and all segments of the industry," says Ben Bolusky, AAN's director of government affairs.

The industry-specific census gives the nursery industry reliable benchmark data for understanding current and future commercial trends, says Bolusky. The next census is scheduled to take place in 1989.

CHEMICALS

Chemical barrier keeps roots away

A chemical barrier system has been developed that can protect sidewalks and streets, swimming pools and tennis courts and other structures from damage by tree roots.

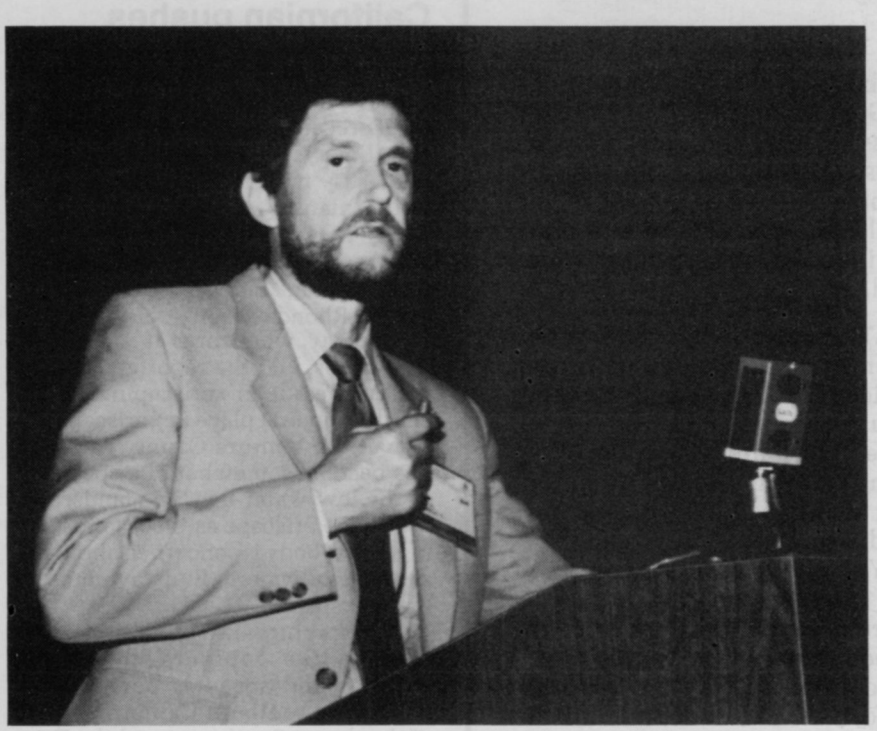
Typar Biobarrier root control system was developed through a joint effort of Reemay, Elanco Products and Battelle Pacific Northwest Labs. The Biobarrier can last in excess of 100 years.

Treflan herbicide mixed with carbon black and polyethylene is formed into pellets. The carbon black and polyethylene provide a reservoir for the herbicide and protect it from being degraded by ultraviolet light. At the same time, they help control the rate at which the Treflan is released into the soil.

"The identification of the class of herbicides known at dinitroanilines (of which Treflan is a member) was very critical to the success of the program," notes Peter Van Voris, Ph.D., Battelle program manager and staff scientist. "They are the only EPA-registered herbicides that inhibit root growth without killing the plants."

The pellets, molded into hemispheres, are attached to Typar 3401 geotextile, a non-woven spunbonded polypropylene fabric that is permeable to water and air. Trial batches were tested in 1987. Full-scale commercial production of Typar Biobarrier began in 1988.

The Treflan pellets were originally invented for a Department of Energy project designed to find a long-lasting way to keep plant roots from penetrating uranium mill tailings burial sites throughout the western part of the country.



Don Short, Ph.D., recommends insecticides and baits for mole crickets.

BIOTECHNOLOGY

It's mole crickets vs. biology

Florida researchers have unleashed the natural enemies of mole crickets in what may be an inexpensive, ecologically-sound answer to controlling the pests.

Mole crickets, which do $30 million damage to private and commercial property in Florida per year, are now forced to square off against a nematode and parasitic wasp—both natural pests of the crickets in South America. Arrangements have been made with researchers there to provide samples and data.

"At the present time, insecticides and baits are the best way of controlling mole crickets," says Don Short, Ph.D., an entomologist with the Institute of Food and Agricultural Sciences at the University of Florida. However, because of Florida's diverse climate, no one solution will work everywhere in the state.

The nematode research is nearest to completion; final testing will take place this spring. Nematologist Grover Smart, Ph.D., is trying to determine the best method of introducing the nematode into the environment.

He is testing two methods: incorporating nematodes instead of poison into mole cricket bait, and injecting nematodes directly into the ground with a water injection system.

The main problem with the nematode is keeping it in a moist environment long enough to ensure contact with the mole crickets. Smart is trying to create a moister bait solution to prolong the nematode's life from 24 hours to 48 hours.

Fred Bennett, Ph.D., a graduate research professor and entomologist, has been working with the parasitic wasps, in particular the *Larra* species. "We hope to get additional strains and species of *Larra* and any other information on mole crickets," he says. "Release will not happen until we are certain that the organisms won't adversely affect the environment."

WEEDS

Timing is essential in herbicide application

Since maintaining healthy turf is the best way to achieve a weed-free lawn, proper mowing, fertilization and irrigation remain the most important elements in a weed management program. If, however, you're planning to apply pre-emergence herbicides to control annual grass weeds in St. Augustinegrass and centipedegrass, several considerations need to be noted, says weed control specialist Bill Lewis, Ph.D., of the North Carolina Extension Service.

These herbicides must be applied before the weed seed germinates. "The ideal time to apply pre-emergence herbicides for crabgrass control is by the time the dogwoods are in full bloom," says Lewis. "And unless rain falls soon after application, irrigation should be applied."

For improved control of goosegrass, benefin + oryzalin, oryzalin, napropamide, or pendimethalin should be selected, notes Lewis. Extended control can often be achieved with two applications eight weeks apart, using the minimum label rate or ½ the maximum rate each time.

Atrazine and simazine have both pre-emergence and post-emergence effectiveness against many annual broadleaf weeds and *Poa annua*, though neither will give you seasonal control of crabgrass when applied as a pre-emergent in the spring. Lewis suggests October to early January treatments for chickweed, henbit, hop clover, corn speedwell, parsleypiert, spurweed and other winter annual broadleaf weeds. He says you can successfully treat annual bluegrass that has already appeared with post-emergence applications.

ORGANIZATIONS

Landscapers being catered to more

Two professional organizations have realized the value of landscape contractors to their markets.

The Irrigation Association has developed several new programs specifically for landscape irrigation contractors, one of which is a substantial dues discount to new contractor members.

The Irrigation Association also held a successful two-day seminar just prior to its International Irrigation Exposition & Technical Conference.

For more information about IA programs for landscape contractors, write its headquarters at 1911 North Fort Myer Dr., Suite 1009, Arlington, VA 22209.

Also, the American Sod Producers Association has opened its membership to landscape architects and contractors. A new class, termed "Affiliated," will permit "any firm or individual who is neither producing turfgrass sod, nor a product for use on a turfgrass sod farm" to qualify.

Applications for membership may be obtained by calling (312) 705-9898 or writing the ASPA at 1855-A Hicks Rd., Rolling Meadows, IL 60008.

Continued on page 12

SHORT CUTS

A PERFECT SAMPLE..... The best test results start with the most well prepared turf sample, **Gary Simone**, Ph.D., reminded attendees at a Florida Turfgrass Association workshop recently. That means the sample is taken *before* fungicides are applied from the margin of the problem area where you can find both diseased and healthy turf. Also, supply three or four plugs from any one area. "Doing this will make the search for fungal matter easier and faster," he said.

BETTER FUNGICIDE APPLICATION..... is what you'll get by reading *Maximizing the Effectiveness of Fungicides*, according to its publisher, Milliken Chemical Co. The 12-page booklet, prepared in cooperation with **Houston Couch**, Ph.D., of VPI-SU, addresses the issues of nozzle selection, water usage, the effect of delayed application, rainfall and watering, among other topics. You can get a copy by calling Milliken at (800) 845-8502 or by contacting your local Blazon distributor.

STORING PESTICIDES..... Your pesticide storage area should be a separate facility that is large enough to store your complete inventory, have a concrete floor with curved sides to contain spills, and shelves to keep material off the floor and provide better air circulation, according to **Norman Nesheim**, Ph.D. Nesheim is a pesticide information coordinator for the Institute of Food and Agricultural Sciences at the University of Florida, Gainesville. He adds that the facility should be far removed from streams or ponds and that the addition of an exhaust fan is a good idea, but not yet law. "I also strongly urge that you date all your containers when you receive them. We often consider using a stored pesticide but sometimes forget whether it's still potent."

SIMPLY OUTSTANDING.....best describes Tecumseh's OVRM 40 overhead valve, according to *Popular Science* magazine. Editors there selected the valve as one of the 100 outstanding developments of 1988.

WATER CONSERVATION.....must become a higher priority with landscapers, says **G.L. Horst** and **N.B. Dunning,** Texas A&M University. They claim that landscapers waste 50 percent of the water they use. "We could do with 50 percent less if we regulated properly," says Horst, adding the fact that we need to be more particular about the grasses we introduce to the environment. Among the biggest "water spending" grasses he listed, St. Augustinegrass was the worst, followed closely by tall fescue, perennial ryegrass, Kentucky bluegrass, then buffalograss, zoysiagrass, strawberry clover and common Bermudagrass.

TIDBITS...A report in a recent *Fortune* magazine states that the landscaping industry will benefit from recent corporate restructuring. The realignment, the report says, has caused companies to eliminate entire divisions, resulting in companies seeking outside help for such things as landscaping.

A recent Roper poll discovered that the percentage of people who value having a lawn and yard has dropped to 52 percent of the population compared to 62 percent in 1976.

News*from page 11*

LANDSCAPING

Californian pushes xeriscaping in paper

Christopher Budway of Simi Valley, Calif., recently appeared in the Riverside *Enterprise* advocating xeriscaping for his fellow southern Californians.

"We want to put the message out that there are ways of landscaping without wasting water," Budway told *Enterprise* reporter Rhonda Alberty-Nowak.

Budway, who works at Agronomic Associates, told the reporter that half his business is in xeriscaping. He recently won first place in xeriscape design at the Ventura County Fair, and has become somewhat of a specialist in the low-water-use type landscape.

"I see xeriscape as 1990s landscaping. Everybody is concerned about the shortage of water," Budway noted in the newspaper.

Xeriscaping—use of hardscape elements like boulders, fountains, gazebos and spas—is particularly popular in southern California, parts of the desert Southwest and the Denver, Colo. area.

BUSINESS

Hiring managers: an acquired skill

Having trouble promoting from within? Can't seem to find the right person to become a manager? Mike Hiller has some answers for you.

"You've got to raise the overall management awareness of potential managers," Hiller told registrants at the Landscape Expo in Nashville. "Start sharing information. Start getting them up to speed on things that are going on in-house so they have an appreciation of it."

Hiller, a consultant with All-Green Management Associates of Columbus, Ohio, listed qualities of good managers. Among them: organization, leadership, initiative, working with others, the ability to prioritize, communications skills, honesty and integrity, as well as the ability to train, paperwork skills and responsibility.

Mike Hiller

"We also need to get a handle on some of the intangibles," Hiller says. "Let potential managers in on some of the decision-making. Get them involved in the process. Let them start thinking and analyzing

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things like you do all the time."

Hiller suggests letting crew members handle some managerial "tasks" for a specified period, be it a week, two weeks or a month. "Put them in the manager's shoes for a while. If they are successful, you might have a managerial candidate. If not, it's not a big thing."

Interviewing for managerial jobs is a critical phase of finding the right person, Hiller believes.

"Ask all the standard questions, but you have to give them hypothetical situations to see how they handle them. Give them crisis situations that you've thought out ahead of time. Get creative, so you can discover the interviewee's talents. But always paint it real."

INSECTS

Florida chinch bug population is rising

Virtually every county in Florida has chinch bugs killing St. Augustinegrass, according to Philip Busey, Ph.D., a turfgrass breeder for the University of Florida, IFAS, at Fort Lauderdale.

In 1985, a new population of the southern chinch bug was discovered that killed Floratam. Called PDP (Polyploid Damaging Population), the pests are especially threatening since Floratam was once believed to be the only cultivar of St. Augustinegrass resistant to them.

In order to get a handle on the size of the infestation, Busey and fellow researcher Bonnie L. Coy obtained survey responses from 62 Florida counties and 22 sod farms. They found that most respondents (87 percent) reported chinch bug damage to St. Augustinegrass turf.

Statewide, the established turf area in St. Augustinegrass was 42 percent, with urban counties reporting a slightly higher percentage. County agents rated PDP chinch bugs the major insect of the grass, while sod producers said they were slightly less important than caterpillars.

"The Floratam-killing chinch bug is causing problems throughout the state, but the size of damaged areas so far appears to be small," says Busey, adding that overall, Floratam fared much better than other St. Augustinegrass cultivars.

"Considering the newness of the PDP chinch bug, and its unknown future course, timely and effective

Chinch bug infestations in home lawns cause the turf to turn brown and quickly deteriorate.

pesticide treatment would be the most prudent short-term line of defense, followed, hopefully soon, by resistant cultivars," he says.

RESEARCH

Coring, wetting agents battle dry spots

Just because researchers haven't figured out what causes localized dry spots doesn't mean there aren't steps you can take to control them, says Karl Dannenberger, professor at The Ohio State University.

Circumstantial evidence suggests that a fungal hyphae that coats sand particles is the culprit, but the fungus has yet to be isolated. Researchers do know that localized dry spots can be associated with hydrophobic thatch and hydrophilic soil, hydrophilic thatch and hydrophobic soil, and thatch and soil that are both hydrophobic.

One of the most effective management practices recommended by Dannenberger is coring. "We've found that, in the soil profiles of localized dry spots, the thatch is hydrophobic and the soil hydrophilic or vice versa," he notes, "Therefore you need to break one of them down. The frequency of coring might be why some people have problems and some don't."

Dannenberger suggests that everyone should be coring at least once a year. Turf managers with localized dry spot problems should be coring at least twice a year, he says.

Dannenberger also recommends syringing the spots to reduce its canopy temperature. Syringing won't eliminate your dry spot problem but may prevent it from becoming worse. Also, using wetting agents will effectively reduce the spots' severity.

"Preventative applications give the best results but curative applications can also be effective," says Dannenberger. The wetting agents should be thoroughly watered into the turf to prevent the possibility of leaf burn caused by these compounds.

"More than anything else, you can't get away from getting out there and watering these areas by hand," adds Dannenberger.

CORRECTION

ICI inadvertently left out of Buyers Guide

ICI Americas was inadvertently left out of the LANDSCAPE MANAGEMENT Buyers Guide in the September issue.

ICI produces and markets Betasan, Fusilade, Devrinol and Eptam herbicides, Imidan insecticide, Captan fungicide and Vapam soil fumigant.

ICI Americas is the producer of agricultural products. The company is located in Wilmington, DE 19897. Phone is (302) 575-3000.

Existing copies of of the Buyers Guide should be changed to reflect these products.

RESEARCH

Ultra-slow-release N source is studied

A University of Dayton researcher is working on a time-release fertilizer that could make fertilizing a once-a-year project.

Richard P. Chartoff, Ph.D.,a professor of engineering materials, is trying to develop a coating similar to those used by drug companies on capsules. Chartoff was originally approached with the idea by Marysville, Ohio-based O.M. Scott & Sons, a major manufacturer of fertilizers. The company is providing Chartoff with $56,000 for a feasibility study.

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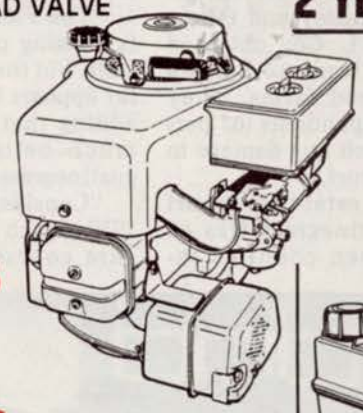

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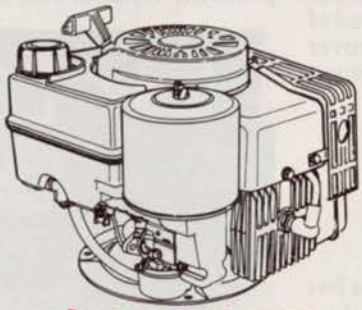

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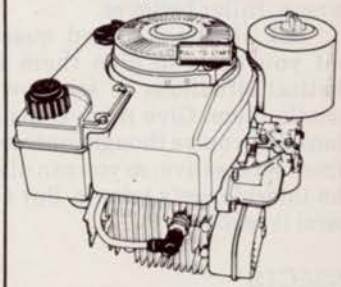

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TECUMSEH PRODUCTS COMPANY - ENGINE & TRANSMISSION GROUP SERVICE DIVISION

Circle No. 124 on Reader Inquiry Card

The tricky part is to find an appropriate plastic coating and discover a way to get it on the surface of a urea fertilizer granule, either by spray or a chemical reaction that forms the plastic.

Aside from saving time, one of the chief benefits of this product is a decrease in water contamination through runoff because the fertilizer would be used up as it is released.

Though efforts are geared mainly toward fertilizer now, the future may hold similar encapsulation technology for pesticides, especially if environmental concerns continue to rise.

LEGISLATION

PLCAA devises action plan

The Professional Lawn Care Association of America is forming a strategic planning committee to address a wide array of legislative, regulatory and environmental issues facing the green industry in 1989.

During the association's ninth annual conference in New Orleans, La., Russell Frith and Jim Wilkinson, Ph.D., outlined an 11-point action plan. The plan includes increased lobbying efforts on the federal level and additional legal counsel in environmental and regulatory law. Frith is PLCAA president and Wilkinson is director of regulatory and environmental affairs.

"These issues are spreading to all parts of the country," Wilkinson told members, "and it's just a matter of time before they're nationwide. We want to act now to make these regulations as reasonable and workable as possible."

Issues now facing much of the lawn care industry include sign posting requirements; notification of neighborhoods prior to product applications; groundwater and surface run-off concerns; revised worker protection standards and additional requirements in employee certification and training.

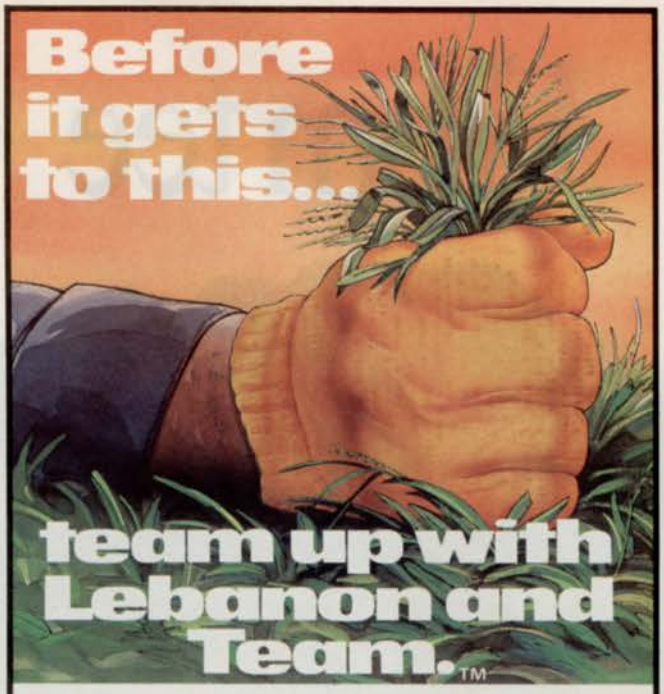
Wilkinson said PLCAA was literally taken by surprise by much of the recent activity by the EPA, DOT and OSHA, and realized increased lobbying efforts were needed.

"We want to expand our role to become the primary spokesperson for the industry at the federal level," said Wilkinson. "We will soon establish a council for lawn care information to encourage the user industry to share its expertise with the federal agencies. That way, we can sit down on a regular basis with the EPA and work on the issues, using our knowledge to answer their various safety concerns."

Noted Frith: "We will also be structuring a stronger and more effective governmental and industrial relations committee whose primary responsibility will be to recommend standards, policies and position statements on regulatory and environmental issues to the PLCAA board of directors."

But despite PLCAA's willingness to work toward compromise, they are also fighting back, especially on the issue of local government control.

"We plan to develop generic legal briefs to challenge local regulation and take legal action in the name of PLCAA, if it is found to be in the best interest of the lawn care application industry," said Frith. Wilkinson added that in Maine, Missouri and Wisconsin, the authority of local governments has been struck down. However, "other local governments are continuing to enact all kinds of legislation, and it's time we flexed our muscles and stood firm." Frith said an increase in the association's dues structure would most likely be enacted to finance the increased federal activity, but that many of the industry's larger companies have indicated they would accept higher dues if it resulted in less regulation.



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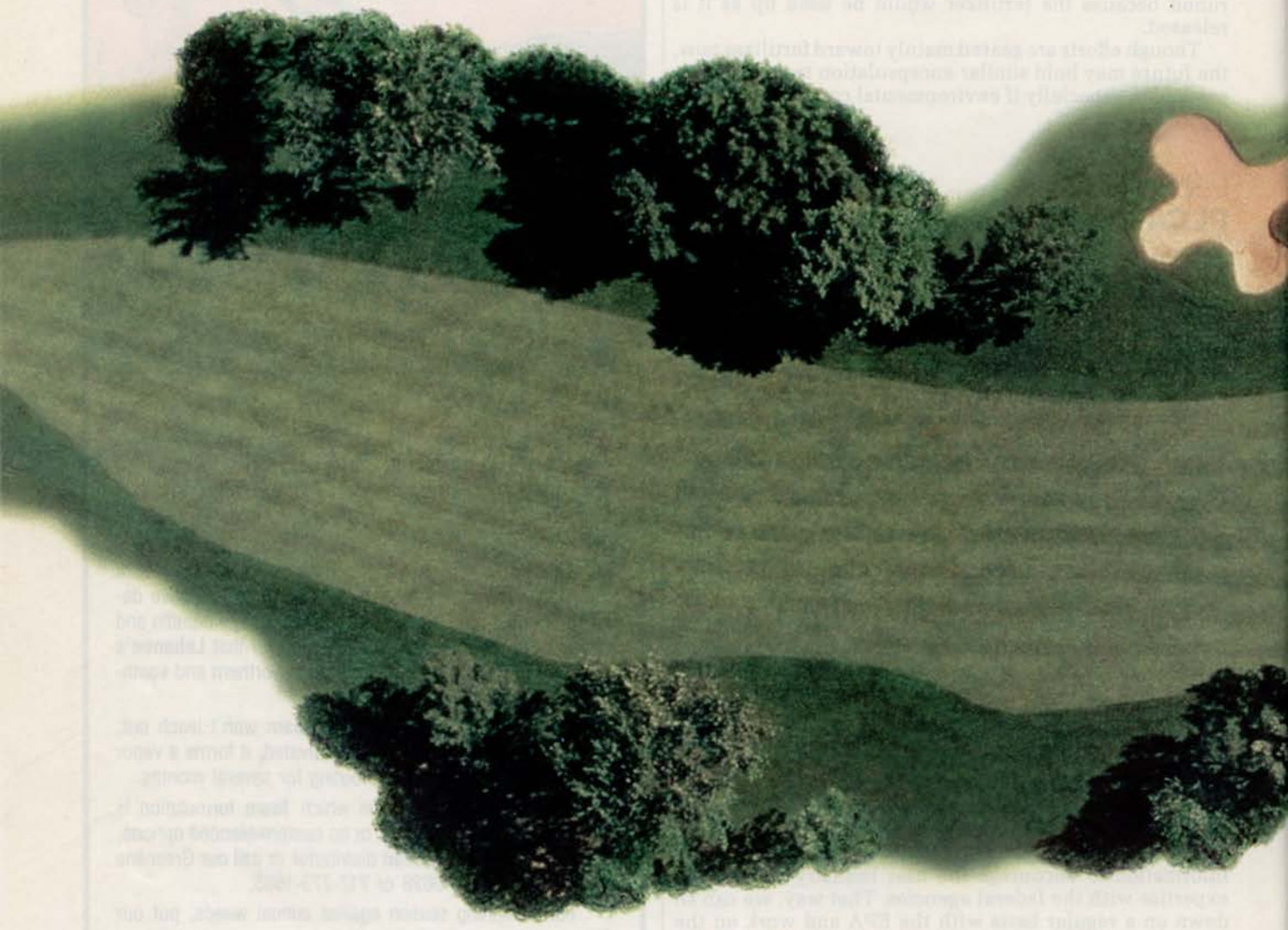
From tee



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From the first tee to the 18th green, your reputation depends on the quality of every square foot of playing surface. That means fairways, too.

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to green.

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Circle No. 119 on Reader Inquiry Card

LETTERS

To the editor:

This is a letter that is long overdue! For the last four years, I have worked for the Town of Raymond Parks and Recreation and have received your magazine. The stories and articles over the years have really helped me give this community some of the best facilities in southern Alberta. Hats off to your staff for all the great work.

I must also thank you for an article that you did over a year ago on "Boardwalk and Baseball." I look after four ball diamonds, three soccer fields and four parks. I especially wanted to learn more about keeping up the baseball fields. So after your article, I took a chance, wrote a letter to "Boardwalk and Baseball" asking if I might come down and work on their complex. After a few months, I received a phone call from Mr. Paul Shaw, who made arrangements for me to work there.

So this spring, I took a month's holiday and went down to Florida where I had the opportunity of working the Kansas City Royals' spring training with George Toma. His help and knowledge made it a great trip. I must also mention Mike Hurd, who was running the complex. For a young man, his knowledge of the grass industry was outstanding; his work and dedication to his fields were a model for me to follow. He was even good enough to let me stay at his place. And work we did, from 7 a.m. until 8 or 10 p.m.—with lots of hands-on experience. All in all, I have to give great thanks to all the staff who treated me so well.

All of this because of your article, which has now shown me how big the grass industry is. And there are some great people like George, Mike, Ed and Paul who are willing to help a fellow groundskeeper.

So, gentlemen, a great big thanks! Please keep up the good work. I really look forward to receiving one of the best magazines around (even over *Outdoor Life*), LANDSCAPE MANAGEMENT.

Dwight Hudson
Town of Raymond
Alberta, Canada

To the editor:

I have just perused the October issue, and was especially interested in the feature you did on seed availability. One thing is certain, and that is every year this feature becomes more interesting and complex.

I did notice in the last paragraph of your article a slight inaccuracy which I wanted to correct. That is, since 1987, Turf Merchants (TMI) has marketed the first-ever dwarf tall fescue blend under the trademark "Turfmates—the World's First Elite Dwarf Turf-Type Tall Fescue Blend." This blend includes Wrangler and Trailblazer, and in 1989 will feature "Bonsai" dwarf tall fescue.

Thank you for your continued support of TMI and the grass seed industry.

Steve Tubbs
Turf Merchants
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Why *our post* should be part of *your pre* plan for crabgrass.

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ACCLAIM works better on reseeded lawns. After a season of drought, you don't want a herbicide to interfere with established fall-seeded turf. That's the beauty of Acclaim. You can delay or eliminate your pre on newly established turf and confidently plan on crabgrass control with Acclaim. Acclaim even allows you to overseed almost immediately before or after application. So even as crabgrass is dying, you're replacing it with lush, beautiful turf.

ACCLAIM for total flexibility. Acclaim gives you new confidence against crabgrass, both early and late. As a rescue, Acclaim provides control you can count on without turf damage. By treating borders and sidewalk areas early, you'll control crabgrass before your customers ever see it. And Acclaim can be used near ornamentals without damage.

The money-saving ACCLAIM program. Take advantage of the special offer for lawn care professionals: Buy 3 gallons of Acclaim before March 31, 1989 and get 1 gallon free.

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Circle No. 107 on Reader Inquiry Card

After 30 years of service, **Jack Wick** has retired as executive director of the California Association of Nurserymen (CAN).

Wick was honored recently during CAN's 78th annual convention on Cornado Island near San Diego.

Jack Wick Day was proclaimed, and a banquet was held in his honor, attended by more than 300 people.

Wick began his CAN career in 1958 as assistant executive secretary. He became the 78-year old association's fourth executive director in 1969.

Among Wick's most notable accomplishments were his efforts to help form the nation's first retail nursery employees accreditation program. In the 19 years since the program's inception, 35 states have used it as a model for their own programs.

Jack Wick

The award has been initiated to recognize industry members who perpetuate the goals of quality customer service, work to upgrade the status of the nursery industry, and establish the nurseryman as an expert in the field of gardening.

Wick will continue to serve CAN as a part-time regulatory consultant. His successor is **Elaine Thompson,** a CAN employee for 14 years.

In other CAN news, the association elected new state officers and associate member directors during its recent convention.

Jan Groot is CAN's new president. Groot has been an active association member for more than 25 years, serving as chairman of several committees.

Jack Christensen was named president elect; **Bob Ludekens** was named treasurer; and **Hugh Atkinson** was named new associate member director.

Purcell Industries has acquired Malamine Chemicals, Inc.'s controlled release technologies development program.

John H. Detrick has been named manager of product and market development. In this new position, Detrick will continue to experiment with polymer coated urea.

Detrick joined MCI in 1983 and formed MCI AgSystems, where he managed the marketing and technical development of a number of fertilizer and herbicides.

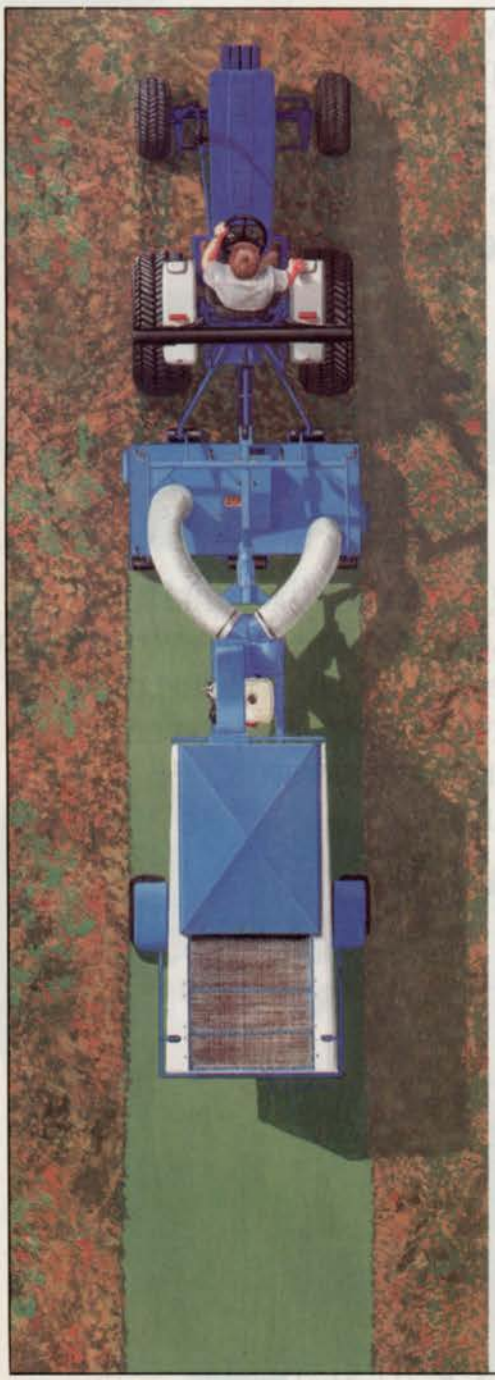
Richard Underwood has been elected president of the Arizona Landscape Contractors' Association (ALCA).

Other new ALCA officers include **Douglas Jones**, president-elect; **Robert Underwood,** vice president/treasurer and **Cal Crozier,** secretary.

R. Underwood

Kim Baenisch

Bruce K. Wilson, president of Environmental Care, Inc., presented **Kim Baenisch** with his companys' 1987-1988 $1,000 Scholarship Award. Baenisch is an architecture graduate student at Cornell University. **LM**



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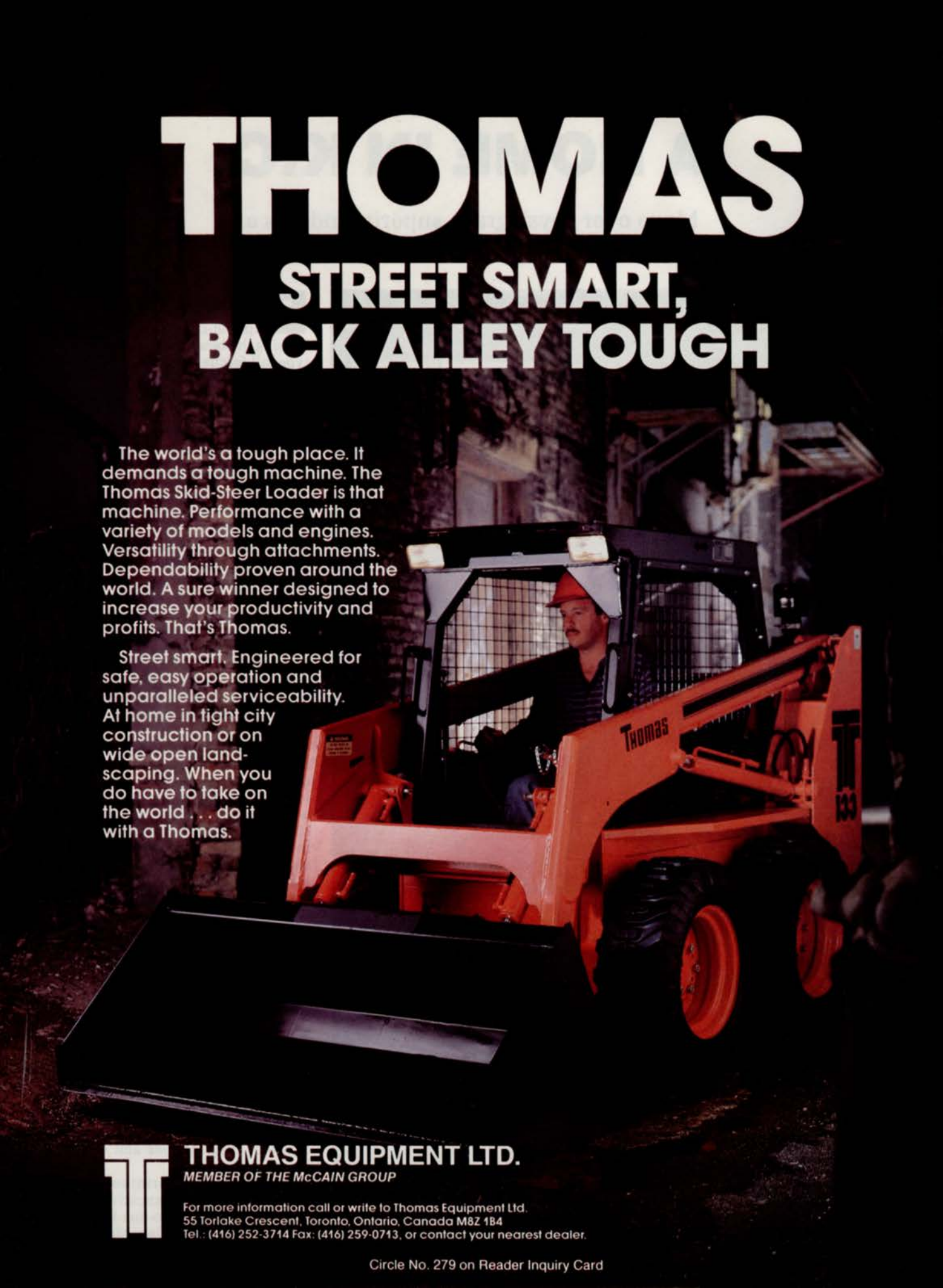

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Circle No. 279 on Reader Inquiry Card

COVER STORY

TALL FESCUES FIND A HOME IN K.C.

Move over zoysiagrass, superintendents are discovering the benefits of tall fescues.

Improved tall fescue varieties, with their deep-rooted, low maintenance characteristics, seem a natural for golf courses in the transition zone.

Everything is up to par in Kansas City where several new and up-and-coming golf courses are reaping the benefits of improved turf-type tall fescue varieties.

Because Kansas City lies in the transition area, superintendents have traditionally used both cool- and warm-season grasses. Zoysiagrass, a native of the area, is a fixture on area courses because it can be mowed to less than ½ inch. However, at an elevation of nearly 1,000 feet in an area that has been known to undergo a severe winter or two, zoysiagrass doesn't fare well in the chilly months. Superintendents have found that tall fescue, a pasture grass that had been adapted to home lawns, was too coarse for any part of their course but rough and unruly areas. Kentucky 31 and Fawn were their early choices, but because of their lighter green color, coarse, uneven texture and disease susceptibility, they were not included in the playing areas of better courses.

As tall fescue breeding produced finer-leafed, darker green and more disease-resistant varieties, a closer look at this promising turfgrass was warranted. These improved tall fescue varieties, with their deep-rooted, low maintenance characteristics, seem a natural for golf courses in the transition zone that have limited water and upkeep budgets.

...Here I come

If Kansas City was not the only area to employ tall fescue in great quantities, it may have the highest concentration of courses using it.

Harold Vance, owner and designer of Teetering Rocks, an executive par three at Royaltown, Mo., has had tall fescue on nine fairways for three years. The second nine holes, which will open next year, will be seeded with Turf Gem, a blend of Apache, Bonanza and Finelawn tall fescues, between ryegrass tees and creeping bentgrass greens.

Lee Miller, superintendent for Smiley's Sportland Executive Course in Overland Park, also due to open in 1989, specified Turf Gem blend on 18

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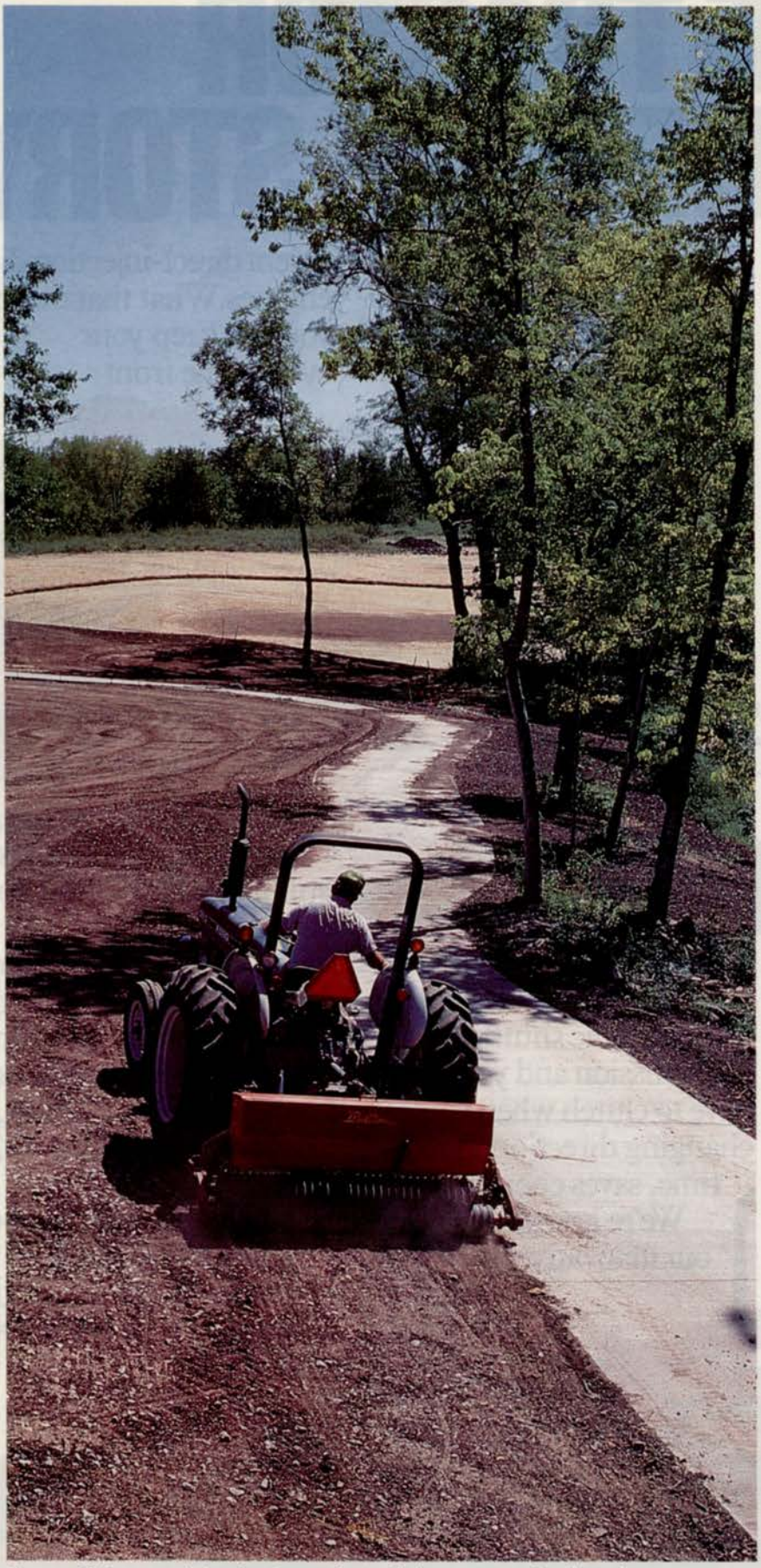


Kansas City superintendents say that tall fescues survive hot, dry summers with limited maintenance and do well in shade and high-wear areas.

fairways. Miller mowed the new growth at two inches in August, reduced the cut to one inch later in the fall and plans to reduce playing height to 3/4 of an inch by the spring of 1989. At that time, he'll overseed with a blend of Monarch, Bonanza, Arid and Falcon.

A destination course in the works is Deer Creek, also in Overland Park. Deer Creek, designed by Robert Trent Jones II, is intended to be a world class, richly detailed, tree-lined 18-hole course set into an upscale residential development.

Larry Hanks, vice president for golf course operations for North Star Development Co. and spokesman for Deer Creek, says he researched courses in the area and found that tall fescues did survive the hot, dry summers with limited maintenance. He also found tall fescues do well in shade and high-wear areas.

Hanks and Don Zelfer, owner of Mr. Turf Sod Co., and Leon Williams of Williams Lawn Seed in Maryville, Mo., agreed to seed the roughs at Deer Creek with Triathalawn tall fescue blend. The preparation and seeding were done by the Mr. Turf team.

Fertilization, seeding and mulching began in mid-August with one application of Lilly 6-24-24 Sure Grow. Triathalawn was broadcast seeded around trees. A Brillion seeder was used for the accessible open areas and the seed was distributed at a rate of 350 lbs. per acre. Seeds were covered with straw and then hydro-mulched.

Quick establishment

The seed blend established quickly. Seedlings were two inches high in the irrigated areas after two weeks.

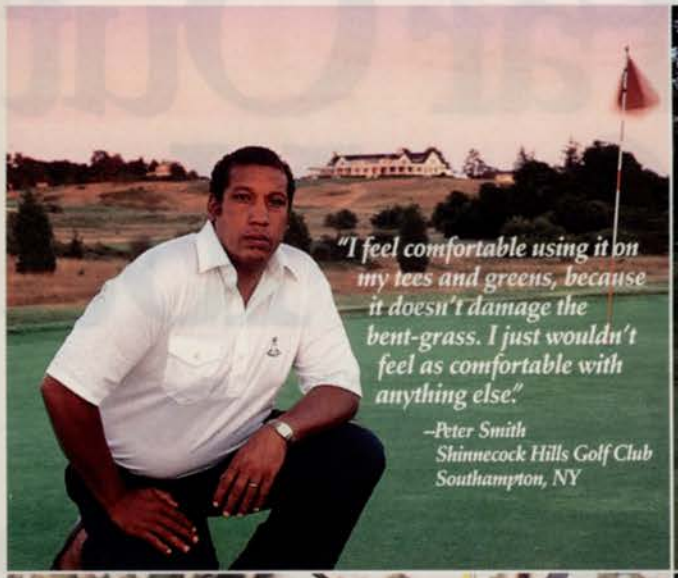
The fairways were sodded with Meyer zoysia and the greens were seeded with Penncross creeping bentgrass.

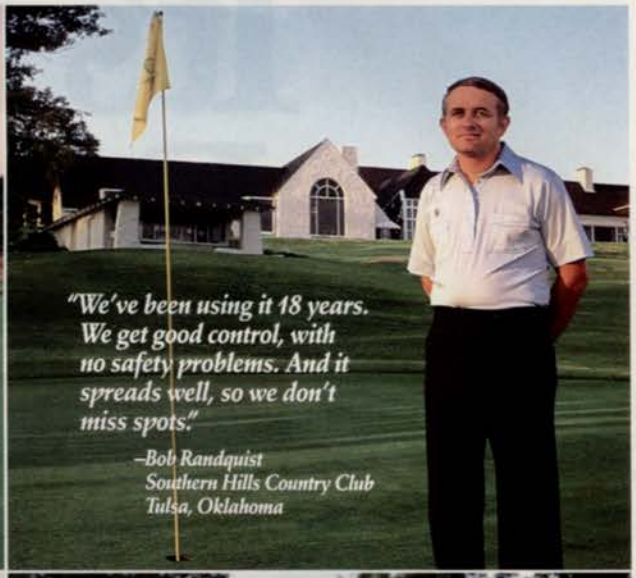
There is still some detailing that needs to be addressed before the course opens next summer, but the tall fescue roughs are established and looking good. And that's one big particular they won't have to worry about.

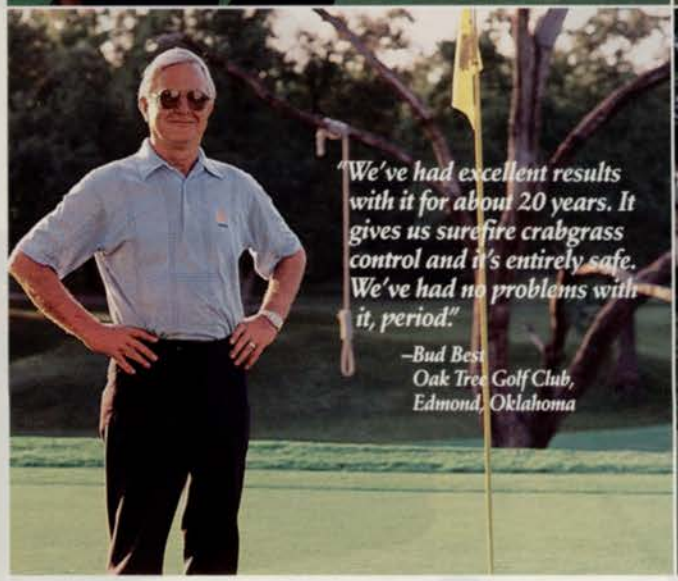
In the future, tall fescues will have a more aggressive growth habit with reduced vertical growth, producing a denser turf. These new varieties will be more competitive in mixtures with other species, allowing their attributes to be incorporated without taking over the tall fescue.

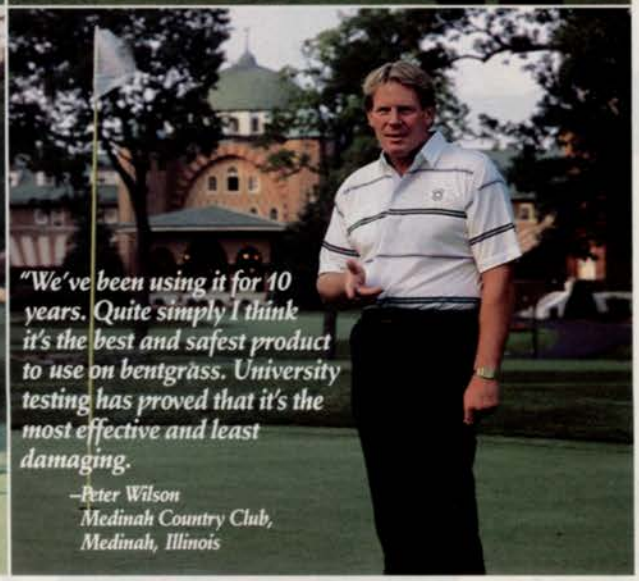
The dwarf growth habit of tall fescue, combined with improved disease resistance and endophyte enhancement, will provide a more attractive, healthy turf adapted to a wider range of use. **LM**

Why Betasan is trusted most by the best.


"I feel comfortable using it on my tees and greens, because it doesn't damage the bent-grass. I just wouldn't feel as comfortable with anything else."
–Peter Smith
Shinnecock Hills Golf Club
Southampton, NY


"We've been using it 18 years. We get good control, with no safety problems. And it spreads well, so we don't miss spots."
–Bob Randquist
Southern Hills Country Club
Tulsa, Oklahoma


"We've had excellent results with it for about 20 years. It gives us surefire crabgrass control and it's entirely safe. We've had no problems with it, period."
–Bud Best
Oak Tree Golf Club,
Edmond, Oklahoma


"We've been using it for 10 years. Quite simply I think it's the best and safest product to use on bentgrass. University testing has proved that it's the most effective and least damaging.
–Peter Wilson
Medinah Country Club,
Medinah, Illinois

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GROWTH REGULATORS FOR POA CONTROL

Two chemical means can be used to control *Poa annua*, or annual bluegrass, in other grasses. One of the means is by using turf growth regulators.

by Terry McIver, associate editor

Many golf course superintendents and other landscape managers consider *Poa annua* their biggest hurdle. Left to plant itself wherever it so chooses, this winter annual can become a handicap to the beauty and playability of golf courses, and the beauty of lawns.

When it's healthy and seedless, poa can be a pleasure for golfers. Its upright growth pattern provides a great fairway lie. Unfortunately, it lacks the endurance of most weeds, and its negative qualities—low disease immunity (anthracnose, summer patch, dollar patch), low heat tolerance and seedhead formation—outweigh the positives. The result is the summer devastation of many poa-intensive courses.

Germinating in the fall, poa remains dormant during early and midwinter, and germinates again in late winter or early spring.

Poa annua needs little encouragement during its formative weeks. It grows and spreads easily, and flourishes best in compacted soil and shady areas.

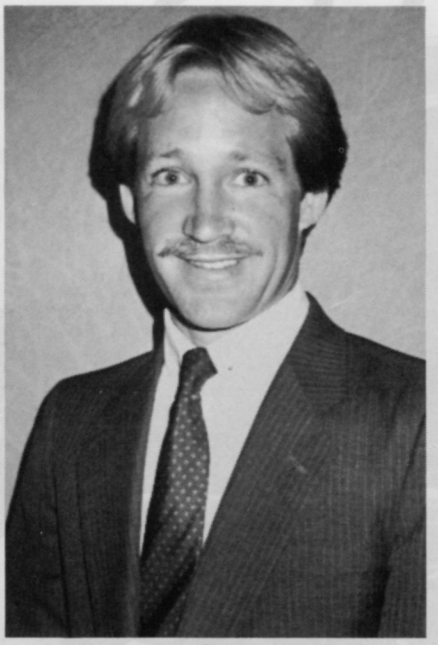
According to Cornell University's Norm Hummel, Ph.D., poa is well able to tolerate the lower oxygen content of compacted soil typical of high-traffic golf courses.

Dave Chalmers, Ph.D., Virginia Tech says poa's growth characteristics make it a mixed blessing for golf course managers. He asks the question, "What more could you ask for than a grass that reseeds itself?

"Many courses have poa as their predominant grass," says Chalmers. "How they deal with poa depends on what level of quality the managers want their courses to attain."

How do we control *Poa annua*? Hummel says that a vigorous poa management plan should include mowing with lightweight mowers to cause less soil compaction than with tractors, and clipping removal, taking away the seed source.

Frank Dobie of Ohio's Sharon Country Club believes grass pickup has a minimum effect on seed control, considering the 10,000-20,000 poa seeds per square foot. Dobie believes that removing clippings means less heat caused by decomposition, giving bentgrass a more competitive edge.



Scott Niven: "Cutless controls the poa, we have fewer clippings, and use less water."

Other proven poa fighters include:

- On-time aerification with flexible tine equipment, to further reduce compaction;
- Deep and repeated irrigation, to stimulate deeper-rooted species, such as ryegrass, bentgrass and Kentucky bluegrass;
- Delayed fertilization in the spring, to deny poa the energy it needs to get a leg up on the perennials; and
- Low phosphorus fertilizers (poa thrives on high amounts of phosphorous).

Chemical tools used to fight poa are growth regulators and selective herbicides.

Hummel believes the two materials available to best combat *Poa annua* are Scott's TGR, a turf growth regulator (paclobutrazol), and Prograss, a selective herbicide effective on newly-germinating, pre-emergent grass or newly post-emergent bluegrass (see sidebar).

Here are growth regulators labelled for this function:

Scott's TGR

"Poa is a universal problem. Scott's TGR retards *Poa annua* while the bentgrass is stimulated," says Larry Widdell, senior project leader of research and development for TGR manufacturer O.M. Scott & Sons Co. "You thereby get a gradual reduction of poa post-emergence with sequential applications."

Widdell says that, in research conducted by O.M. Scott, bentgrass populations increased from seven to 90 percent in August, after May and June applications of TGR.

The product is registered for use on fairways, bentgrass greens, collars and roughs. "More research is needed before Scott's TGR can be recommended for tees," cautions Widell. "Long-term, permanent suppression of *Poa annua* on these high-traffic, high-wear areas may be more difficult. Many tees, in fact, are nearly 100 percent *Poa annua* and conversion to other grass types would require much overseeding or possibly divot fill-in with a mixture of seed and sand."

Scott Niven, property manager for the Stanwich Club, Greenwich, Conn., and president of the Metropolitan Golf Course Superintendents' Association, says TGR has a strong effect on poa, immobilizing it so it can be overcome by the bentgrass.

Niven has tried TGR after the spring green-up and between mid-August and/or mid-September.

"It (TGR) does work," admits Niven, "but the biggest obstacle you have to overcome is a disgruntled club membership; if the course contains a high amount of poa, golfers must be told that the course will be yellow for six to 10 weeks."

Dobie reports that lately, Scott's

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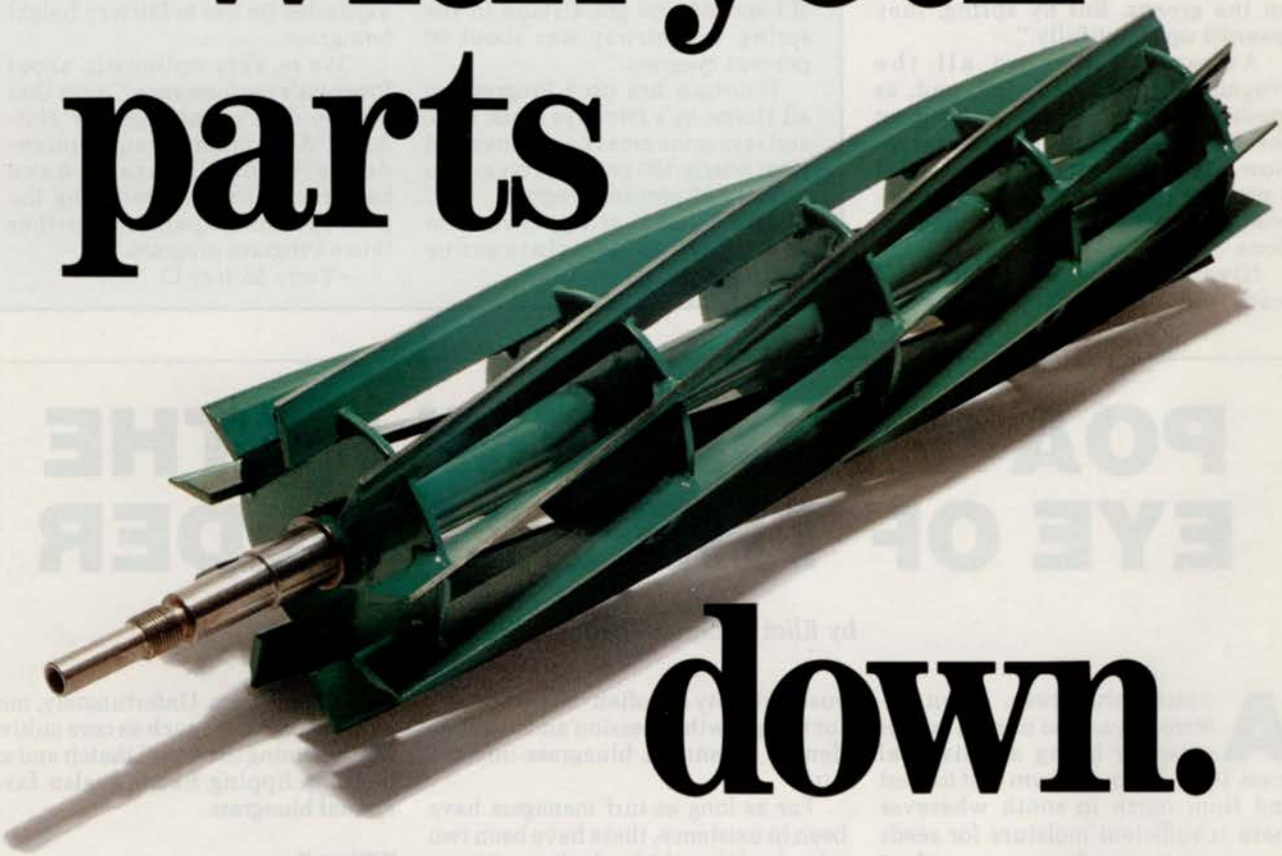

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TGR has been used as a retardant by some course managers.

"It's put on a fertilizer carrier and taken up into plant roots. It causes a retardation of all plants, but it retards the poa for a longer period of time than Embark. The bent recovers sooner and spreads."

The Sharon Country Club has used TGR experimentally on one fairway. Prior to the experiment, the poa/bent ratio was 50/50. That ratio has improved considerably, to a full 90 percent bent growth.

Dobie is not using TGR on putting greens, but a number of golf course superintendents have, including Ken Aukerman of Weymouth Country Club in Medina, Ohio.

"I applied TGR on four greens last fall at normal rates," says Aukerman, "and it killed the poa too effectively, resulting in brown spots. Then it rained, and there were yellow areas on the greens. But by spring, they greened up beautifully."

Aukerman treated all the Weymouth greens this fall, and, as predicted, they started to green up on the 21st day following treatment. Now, the Weymouth greens consist of a mere 10 percent *Poa annua*, as opposed to 90 percent before the applications.

Niven did much experimental work with Embark a number of years ago, and says that that product is best prescribed for seedhead control rather than poa control.

Niven recommends using Embark in early spring, just before seedheads form. It will effectively stop seeds for four or five weeks. If, however, a manager attempts to correct a bad first application by a repeat treatment, there

continued on page 32

A herbicide for poa

For many golf course managers, Prograss, from Nor-Am Chemical, remains the product of choice for controlling *Poa annua*.

"Nothing worked on *Poa annua* until we tried Prograss," says Roy Hourigan of the Harmony Landing Country Club in Goshen, Ky.

"We used it on one ryegrass fairway in the late fall of 1985. We applied two treatments a month apart at a gallon per acre. After the second application, I could tell the poa was starting to die. By the time I slit-seeded and got a stand in the spring, my fairway was about 90 percent ryegrass."

Hourigan has used Prograss on all Harmony's fairways since 1986, and says some areas have converted from nearly 100 percent *Poa annua* to about 80 percent ryegrass.

"We'll use it at the lower rate every fall as a maintenance program."

"We tried Prograss on our fairways and roughs in the fall at a ½-lb. per acre rate," says Niven, who applied it on ⅜-inch bent fairways. There was minor discoloration, but the poa looked thin by the end of November. By April, it was overcome completely. We used it at a higher rate on bluegrass roughs, with equally good results."

Prograss was originally labeled for ryegrass, overseeded Bermudagrass and bluegrass, but recently expanded its use to fairway height bentgrass.

"We're very optimistic about Prograss's performance," says Don Maske, district manager for Nor-Am. "A number of superintendents whose courses have bentgrass fairways are trying the product and expanding further into a Prograss program."

—*Terry McIver* □

POA 'PROBLEM' IN THE EYE OF THE BEHOLDER

by Eliot Roberts, The Lawn Institute

Annual bluegrass, often referred to as *Poa annua*, comes close to being a universal grass. It can be found from east to west and from north to south wherever there is sufficient moisture for seeds to germinate, produce a new plant which can flower and yield a few more seeds.

Only a very short growing season is required to produce seed. Even under close mowing of golf putting greens, annual bluegrass will seed and perpetuate itself nicely.

As long as temperatures are cool and moist, annual bluegrass flourishes. When temperatures increase to produce the slightest stress on the plant, annual bluegrass weakens quickly. Shallow roots and disease susceptibility are often cited as causes for this growth recession and ultimate demise of annual bluegrass-infested turf.

For as long as turf managers have been in existence, there have been two schools of thought for dealing with annual bluegrass. The first is to live with it. Keep it alive by providing for its needs in times of stress. This often has meant frequent light watering to keep it cool; use of fungicides and applications of fertilizer formulated to help it resist wilt. Low nitrogen and phosphorus with high potassium during the summer months work well. At other times of the year, practices that favor other basic grasses are emphasized to help establish a healthier, more competitive turf that will crowd out the annual bluegrass. Unfortunately, most of these practices, such as core cultivation, thinning to control thatch and adjusting clipping heights, also favor annual bluegrass.

Killing it

The second school of thought has been to kill it by whatever means will work best under local conditions. Many different types of chemicals have been tested with varying degrees of control. But annual bluegrass is such a heavy seed producer that soils contaminated with seed are hard to clean up. Thus any practice takes a long time to really show progress. Growth regulators are being used to cut back on seed production that in time helps reduce annual bluegrass

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populations. With all the chemical control methods recommended, annual bluegrass is still a major contamination in fine turf.

It's interesting that annual bluegrass isn't completely annual. Some plants are biennial and others perennial. Some produce a lot more seed than others. Some are more tolerant of high temperature and drought stress than others, and some winterkill more readily than others. It's this genetic diversity that makes them sometimes friend and sometimes foe. But there is no question about the poor appearance of lawn or sports turf that has had large patches of annual bluegrass die out in the middle of the summer as a result of environmental stresses.

As a member of the faculty of the Agronomy Department at the University of Massachusetts some time ago, I recorded changes in plant populations over a steam tunnel in front of Stockbridge Hall. Annual bluegrass (shown below) was a major contributor to the changes observed.

Although many faculty and students on campus failed to understand what natural ecology was taking place on that steam line, we can learn something about the persistence of annual bluegrass and how nature has provided for its survival.

Try to live with it, or try to control it: either way, you are confronted with a grass that can be at its best one minute and at its worst the next. Some call it a basic grass; others a weed. It's all a matter of when you look at it and for how long.

1. In August, soil temperatures above the steam line were 80°F or higher through the root zone. No grasses or weeds could survive these conditions and all vegetation died. Note that on either side of the line, Kentucky bluegrass turf looked good.

2. As fall temperatures cooled the soil down to the 50s and 60s, annual bluegrass seed, already in the soil from the previous spring, germinated and produced a dense stand of nearly 100 percent bluegrass. By November, the annual bluegrass looked better than the Kentucky bluegrass on either side. Students and faculty commented on what a fine job we had done to improve the appearance of the turf. They thought we should seed the whole campus with what they perceived to be a new miracle grass.

3. Even in March, as the snow melted above the steam line, the annual bluegrass was green, and looked superior to the dormant Kentucky bluegrass on either side.

4. In early April, with the snow all gone and spring warming of soils under way, on either side of the steam line the Kentucky bluegrass was recovering nicely from its winter dormancy. Note that on the line the annual bluegrass had already turned yellow-green and had started to produce seed.

5. By the last part of May, not only was the annual bluegrass seeding all up and down the steam line, but seed along the edges of the line had germinated and produced plants that were also seeding. The massive quantities of seed produced by this grass at a one-and-a-half-inch lawn height of cut are evident. Annual bluegrass, when flowering like this, results in very poor quality turf.

6. As the end of June approaches, soil and air temperatures increase to a point at which the annual bluegrass wilts and weed seeds start to germinate. Soil moisture content and soil temperatures vary at the onset of wild depending on the management of the lawn or sports turf.

7. In mid-July, the steam line has become populated with nearly 100 percent spotted spurge. Some crabgrass is also evident. With increasing temperatures, even these weeds die out to leave only a cover of dead vegetation.

8. But that's not the end. Because of that heavy crop of seed produced back in April and May, there is plenty of annual bluegrass to reestablish the steam line again.

LM

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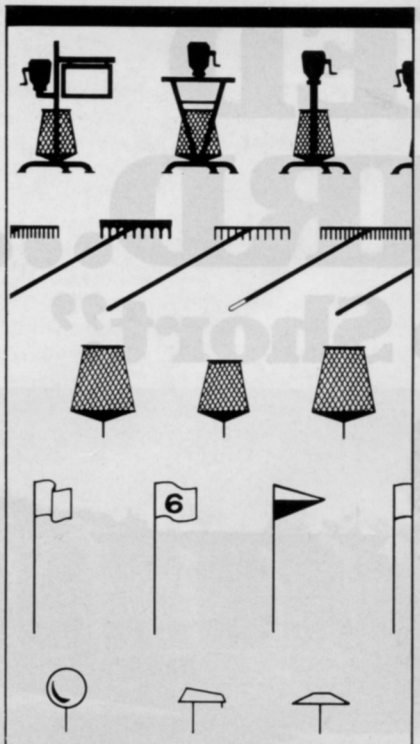

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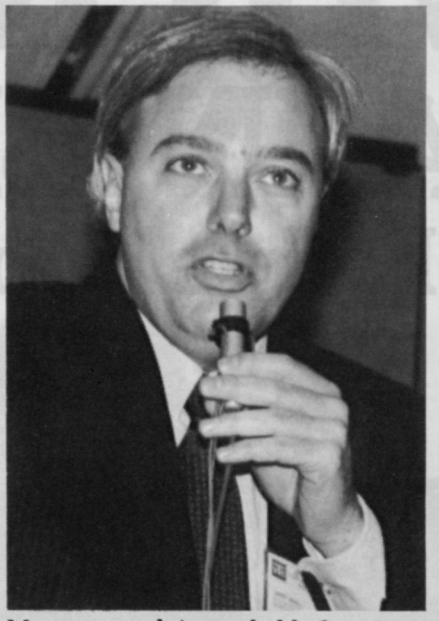


More research is needed before TGR will be recommended for tees, says O.M. Scott's Larry Widell.

is the potential for excessive yellowing due to over-application.

Dobie says that he has also used Embark on Sharon Country Club's fairways for the last five years, to inhibit the growth of seedheads in the spring.

"It has worked effectively for inhibition and has slowed the poa down," says Dobie. "We've also been mowing the fairways for the past four years with the triplex greensmower. The combined practice has increased the course's bent growth up to 50 percent."

According to Dobie, the suspicion is that Embark's growth retardants cause poa to be stronger during the summer months because the poa plant doesn't expend carbohydrate reserves. When poa growth retards in the spring, bent growth also slows, but it recovers faster. Soon the bent encroaches on the poa.

Dobie says that as an added benefit, seeding into a fairway one or two days after Embark is applied causes seeds to germinate before the poa recovers, and the new plants do not take in the Embark.

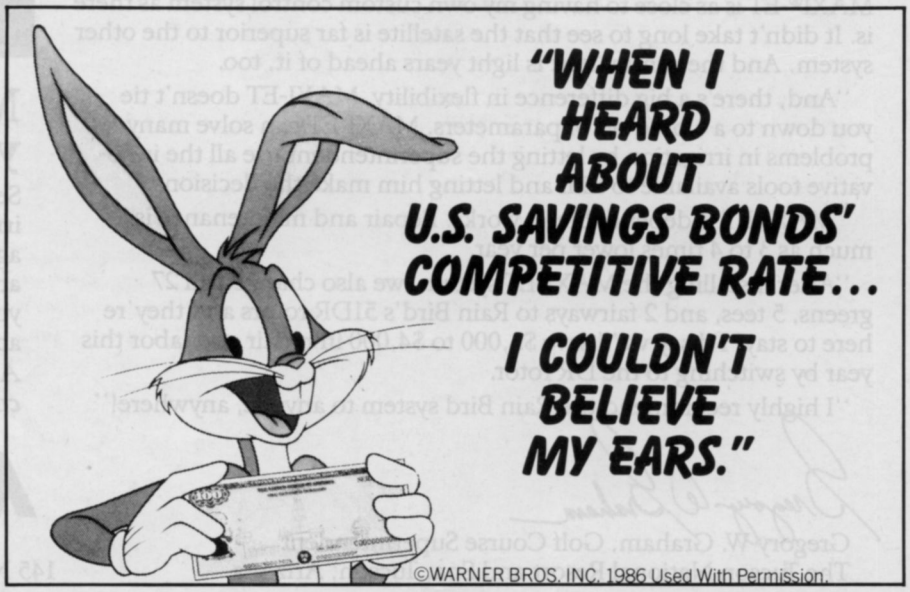
Cutless on horizon

A long-awaited, soon-to-be-released regulator is Elanco's Cutless, which selectively inhibits growth. Experimental results have been quite positive in selective growth inhibition. Hummel says Cutless has performed well in golf course experiments, resulting in about a 90 percent bentgrass concentration where there was once 50 percent poa.

Cutless treatment can involve three to four years of continuous application, with several spring and fall applications used in conjunction with plant growth regulators. According to Hummel, the growth regulators in Cutless can knock the poa back, but will not kill it completely. However, courses can expect six good weeks of effective poa control.

"You can spray it on any time of the Year," advises Niven, "at ⅛/2-lb. per acre. But it will yellow the turf at rates exceeding 1½ pounds per acre. Cutless has more flexibility to be used throughout the year at lesser rates."

"All things considered, Cutless is our choice," admits Niven. "It controls the poa, we have fewer clippings due to slower growth, water savings because the plant is healthier and requires less water, and we get broadleaf control as an added benefit." **LM**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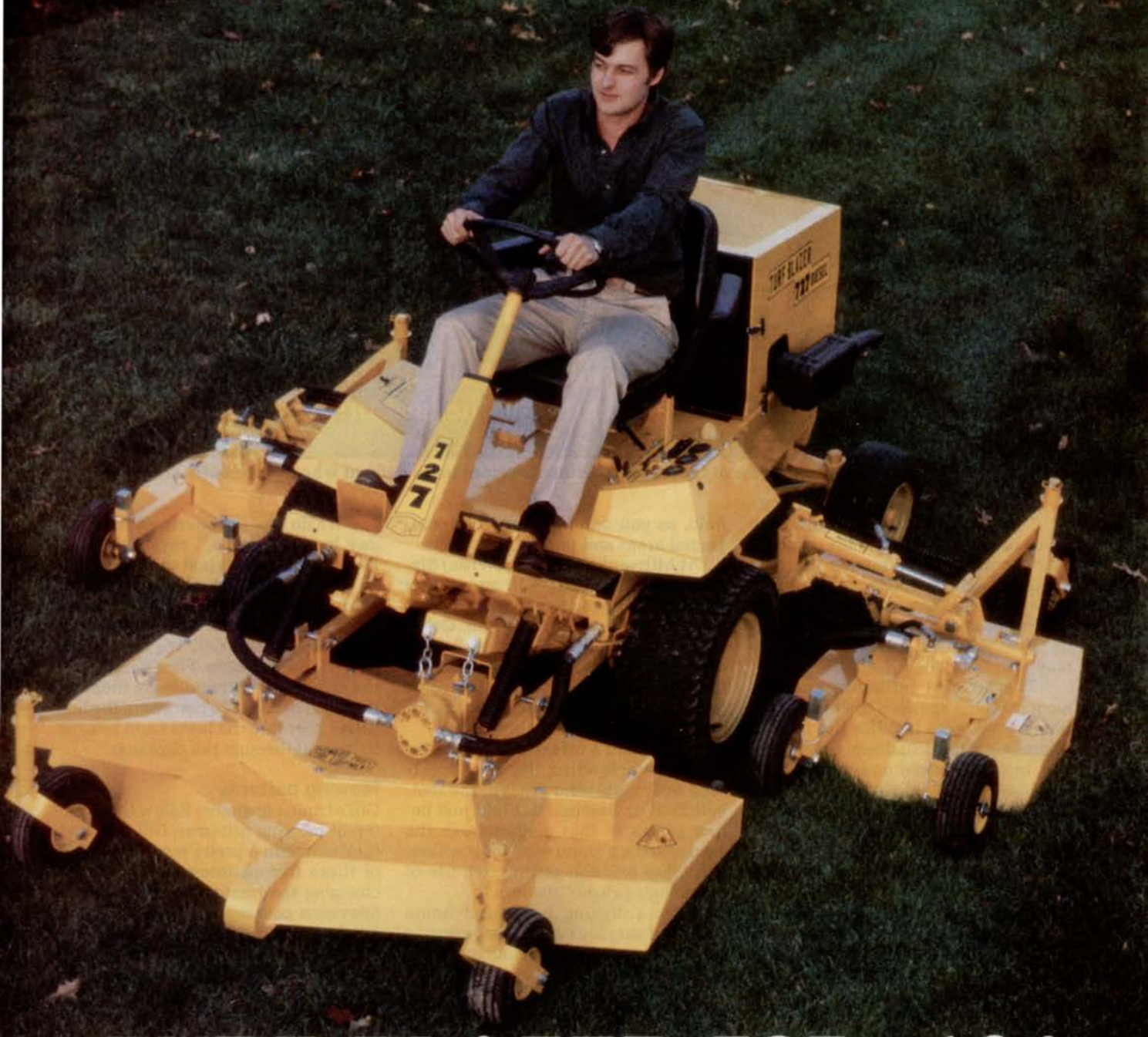

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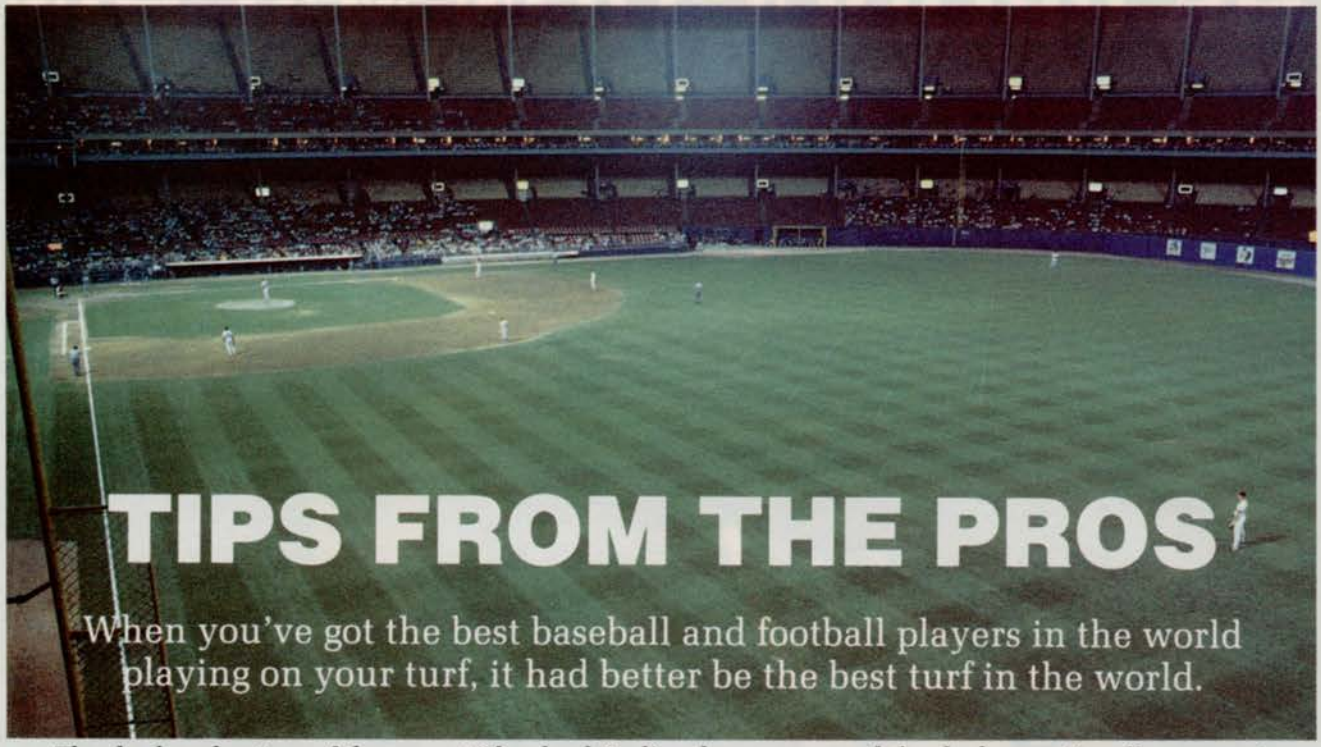

TIPS FROM THE PROS

When you've got the best baseball and football players in the world playing on your turf, it had better be the best turf in the world.

The checkered pattern of the grass at Cleveland Stadium becomes more defined when continually cross-cut.

In the "old days," the talk was about how baseball fields could be maintained to influence the outcome of a game. Today, professional athletic turf managers concentrate on getting the best playing surface, not on trying to gimmick a field to influence play.

"The greatest influence you can have is on the speed of the ball," says David Frey, who handles the field at Cleveland (Ohio) Stadium. Grass density, mowing height and grain all affect how fast a field plays.

"But anything you do to influence play can work against you," Frey adds. "Let's say you've got a pitcher who tends to be hit on the ground. You can cut higher to slow the ball down, but the opposing team can see that and bunt successfully.

Frey considers the attractive striping pattern he gets on his field especially important for television. Frey says that it is important to mow regularly, so that no more than one-third of the grass blade is cut off at any one time.

Actually, most of the changes we make are with the dirt," says Frey. "Topdressing will slow the ball down some, just as adding moisture or softening up the dirt slows things down."

Field condition is Frey's main concern, and adequate drainage—especially surface drainage—plays an important role.

"If you're spending money on a field," says Frey, "it's more important to end up with a proper grade than to install subsurface drainage. A proper grade will keep water moving off the field, so you don't end up with compacted areas and puddles."

At Milwaukee County (Wisc.) Stadium, veteran Harry Gill agrees that anything done to affect play can work against you as well as for you. Other than occasionally orienting infield grain one direction or the other at the team's request, his "tricks" involve growing grass and managing dirt for optimal playing conditions.

One of Gill's favorite practices involves overseeding. He broadcasts seed over high-wear areas of the football field or baseball outfield just before games so that players push the seed into the ground with their spikes. Gill takes pride in getting free use of these high-priced "seeders."

Players digging in around home plate and carving out landing areas in front of the pitcher's mound are more of a problem.

"You don't want someone getting a broken ankle sliding into a hole at home plate," says Gill, "and some of these guys will dig in up to their knees if you let them."

To deter the players' excavating tendencies, Gill has his grounds crew place hard-packed clay bricks two inches below the soil surface in these areas. They make the bricks by combining two types of clay soil with a coarser material, watering the mixture, packing it into cake tins, and setting these in the sun to dry.

Gill uses his best clay on the mound and around home plate. For the basepaths, he uses a mixture of 50 percent sharp sand, 30 percent clay loam and 20 percent pure clay.

"We do a lot of watering during the day before a game," says Gill. "We keep the basepaths just short of mud."

Gill applies slow-release fertilizer every seven weeks. "It's about eight weeks to full bloom, with a total cycle of 14 weeks," says Gill. We mow every day with a Jacobsen Trim King, keep the clippings short and leave them on the field, becuase 70 percent of the fertilizer goes into the leaves and returns to the soil through the clippings."

Mowing patterns

Gill's triplex operators follow three different mowing patterrns. Gill says that they maintain a pretty regular rotation of these five patterns, but admits to changing the rotation occasionally for television coverage or "because we're just feeling 'ornery' one day."

Nothing draws people's attention to the quality of a natural sports field than the beautiful striped or checkered pattern created by mowing. It takes a quality reel mower and an experienced operator to create this professionally finished "television coverage" look.

In his nine years at Cleveland Stadium, Ed Shaner has seen several triplex mowers come and go. His last one had fixed reels with no front rollers and a manual reel lift.

"I had to stay on the grass on turns," he says. "I couldn't get the straight-edge striping from the infield to the warning track, and it still scalped the grass along the edges."

Before that, he used an old hydraulic trimming mower.

"The seat was too high," says

Shaner, adding that the low seat of the Jacobsen Tri-King 1471 gives him a better viewing angle for accurate striping.

That checkered look

To get the checkered pattern at the stadium, he first cross-cuts the field parallel to one foul line, laying down one set of stripes. the next day, he cross-cuts along the other foul line, striping at a 90-degree angle to the first cut.

Shaner makes striping the field look easy, but on each cross-cutting turn he must steer, adjust traction speed, and raise and lower the reels—all within the space of a couple of seconds. In this case, the mower makes his job easier.

Striping accuracy depends on lining up precisely with the foul line and maintaining a consistent amount of overlap on succeeding passes. He corrects the pattern midway through by sighting down a line running through second base from either first or third base while mowing in from the outfield.

After Shaner establishes the mowing pattern with his first two cuts, he simply "drives between the lines" on subsequent cuttings. By following the same direction of cut, the striping intensifies as the season goes on.

The field at Municipal Stadium in Cleveland is mowed regularly, so that no more than one-third of the grass blade is cut off at any one time.

The dramatic checkered mowing pattern created with the Trim-King draws people's attention to the high-quality turf at Cleveland Stadium. At other sports fields, the striking, "ready-for-prime-time" look assures everyone—from spectators and players, to team owners or school board members—that this is professionally maintained turf. **LM**

Another tip: water removal system

David Frey of Cleveland Stadium swears by his Super Sopper. His what?

"During a concert last year, we got a lot of rain," Frey remembers. "If we didn't have a Super Sopper, we wouldn't have been able to play football the next day."

The Super Sopper is a water removal system that works like a giant sponge.

Attached to a metal drum that can be ridden, pulled by a tractor or walked behind (depending on size) is a cylinder of special foam. When rolling the unit over standing water, the foam sucks up the water and deposits it in the middle of the drum for easy disposal.

The Super Sopper, from Kuranda USA, uses a foam center to absorb and efficiently remove water from virtually any athletic surface.

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Super Soppers have been successfully used at the 1988 LPGA Crestar Classic, the 1987 Little League World Series and the 1987 American League Playoffs in Detroit. In a Miami-Buffalo NFL game in 1987, a Marlin model removed 20,000 gallons of water in four hours prior to kick-off.

According to Mike Harding, president of Kuranda USA, the Super Sopper has been marketed in North America only 1½ years even though it was invented in Australia in the mid-70s.

One of the beauties of the Super Sopper is that it can be used on any surface from turfgrass to asphalt without harming either itself or the surface. It can pick up to one inch of standing water with just one pass.

Though it hasn't caught on among golf course superintendents yet, the Super Sopper has applications in that market.

"One of the worst possible golf situations is to have a hot day and then have an inch of rain in one hour," notes Frey. "Before the water drains, it'll cook. But with a Super Sopper, you wouldn't have to worry about that."

The Super Sopper comes in five sizes, from the Marlin that removes up to 100 gallons of water a minute to the Mackerel, a 15-inch diameter drum with a six-gallon tank. The smaller units are especially good for youth baseball diamonds, Harding says.

Super Soppers were used in Seoul, Korea, at the 1988 Olympics. Shea Stadium, Buffalo Bison Stadium and Pimlico Race Track all have them.

Prices range from $459 for the walk-behind to $15,000 for the largest riders.

SURVIVING A DISASTER

Three years ago a flood devastated Preston Country Club. Today the course is more competitive than ever.

by Carl Kovac, contributing editor

The ton of silt left behind by the flooded Chest River were used to add to the contour of the course.

Three years ago last month, West Virginia's Cheat River, glutted by torrential rains, roared over its banks, causing hundreds of millions of dollars in damage in 29 of the state's 55 counties. It destroyed some 1,000 homes, ravaged farms and claimed more than 40 lives.

One of the victims lived in a house at the Preston Country Club, just outside Kingwood, county seat of Preston County.

Art George, the club's superintendent and a member of its board of directors, recalls the flood.

"It hit the club about midnight on November fifth. The fire department came and woke (the victim) earlier that night. They told him he'd better get out. He said he had lived all his life in the area; that the river had never crossed the road (along the bank at the country club); and he wasn't about to leave. They found his body two days later, about eight miles downstream."

The flood waters destroyed five houses on the country club grounds; washed away the cart storage building, most of the carts, a pump station and one-third of the clubhouse; crippled all of the maintenance equipment; and dumped an estimated 1 million cubic yards of silt and sand on 70 percent of the 18-hole, par 72 golf course. Estimated damages totaled $1.16 million.

This marked the first time the club, founded in 1926, had ever been inundated, "and the water exceeded by 10 feet any recorded flood of the river," George reports.

'Are we dead?'

Preston Country Club nestles in a valley surrounded by some of the picturesque mountains for which the state is famous. "It covers the only flat ground available in the area for a golf course," says George. In addition, he points out, the club is one of the few assets in an economically depressed county in an economically depressed state. You don't exactly have to be wealthy to join; dues are $500 a year.

"The first thing we had to decide," says George, "was, are we dead or are we going to rebuild? The stockholders met, and we voted to rebuild."

Hearing of the club's plight, golf course architect Michael Hurdzan of Columbus, Ohio, offered his assistance. "He volunteered his time to tell us what to do and to help supervise the reconstruction," George says.

Says Hurdzan: "I'm a West Virginia native, and when I heard about what happened, I called and offered my services at half my normal fee. A coal company sent a plane to pick me up. When I saw all that devastation from 1,000 feet, I forgot about my consulting fee."

George and Hurdzan wrote a letter to every magazine related to golf courses, telling what happened and asking for help (WEEDS TREES & TURF, Jan. 1986).

Money dribbles in

Small checks—$5 and $10—began dribbling in from around the country, but a lot of help came from area businesses, club members and neighbors, George says. "A coal company supplied a truck, bulldozers and backhoes, and a timber company sent us a log skidder and a crew for a month at no charge. Now you have to remember that they were hit by the flood, too, but West Virginians are the kind of people who help their neighbors in times of adversity."

Hurdzan agrees. "It was yet another example of the fortitude and strength of the people of West Virginia, who are no strangers to hard times."

It took a month just to remove the debris the rampaging Cheat had left on the acreage. It got kind of tricky at times. "In addition to uprooted trees, logs, parts of houses, and several cars," George explains, "we had a couple of 500-gallon fuel tanks that had come downriver from someplace, propane tanks, and ammunition from Camp Dawson (a National Guard facility) just upstream. We had to sift through every pile of debris before we burned it."

Then there was the silt. "That was our biggest problem," says George. "It ranged from one-half inch to eight feet deep and it would suck your boots right off. We salvaged all of the greens we could by hosing and shoveling off the silt. We couldn't afford to have it trucked away, so we decided to make it work for us."

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Club was about as flat as Kansas. "By piling the silt in mounds along the fairways and around the greens—we made bunkers out of some—then seeding them, we changed the whole contour of the course," George explains. "In fact, it's a better, more demanding golf course now than it was before the flood."

Only four holes escaped any damage. Workers had to build three new greens and re-seed 70 percent of the course, using a Kentucky bluegrass blend on the fairways and bentgrass on the greens.

The missing carts

All of Preston's 27 EZ-Go golf carts were destroyed or washed away ("We never did find one of them," says George) and were replaced with new EZ-Gos. An old Ford tractor totaled by the flood waters was replaced with a new Massey-Ferguson. The club's Cushman utility vehicle, Jacobsen mowers, Turfco top dresser and Ryan aerator were sent to a firm in Pittsburgh, Pa., to be reconditioned or rebuilt.

Unfortunately, insurance only provided $75,000 for reconstruction of the clubhouse. The money was used to pay off the mortgage on the damaged building and a new clubhouse was built for $240,000. There was no flood insurance on the rest of the buildings. "We didn't carry flood coverage on the other buildings," George explains, "because no one thought the Cheat would ever flood to that extent."

Art George points out one of the new silt bunkers on Preston Country Club's course. These slopes have made the course more challenging.

However, says George, "we were able to get a $500,000 disaster relief loan at three percent from the federal government." Members, he quickly adds, began paying their dues early to help out "and we set out to sell 80,000 additional shares in the club to existing stockholders at $1,000 a share. So far, we've sold about $85,000 worth."

It was originally estimated that it would take five years to fully restore the club. Today, one would never know there had been a flood, although there is some fine tuning to be done.

"Actually, we began playing on a jury-rigged golf course in the spring of '86, using one of the holes as two," George says, with not a little pride. "I can remember standing on a slant par-three and hitting a nine-iron over a guy on a D-9 Caterpillar dozer to get on the green." **LM**

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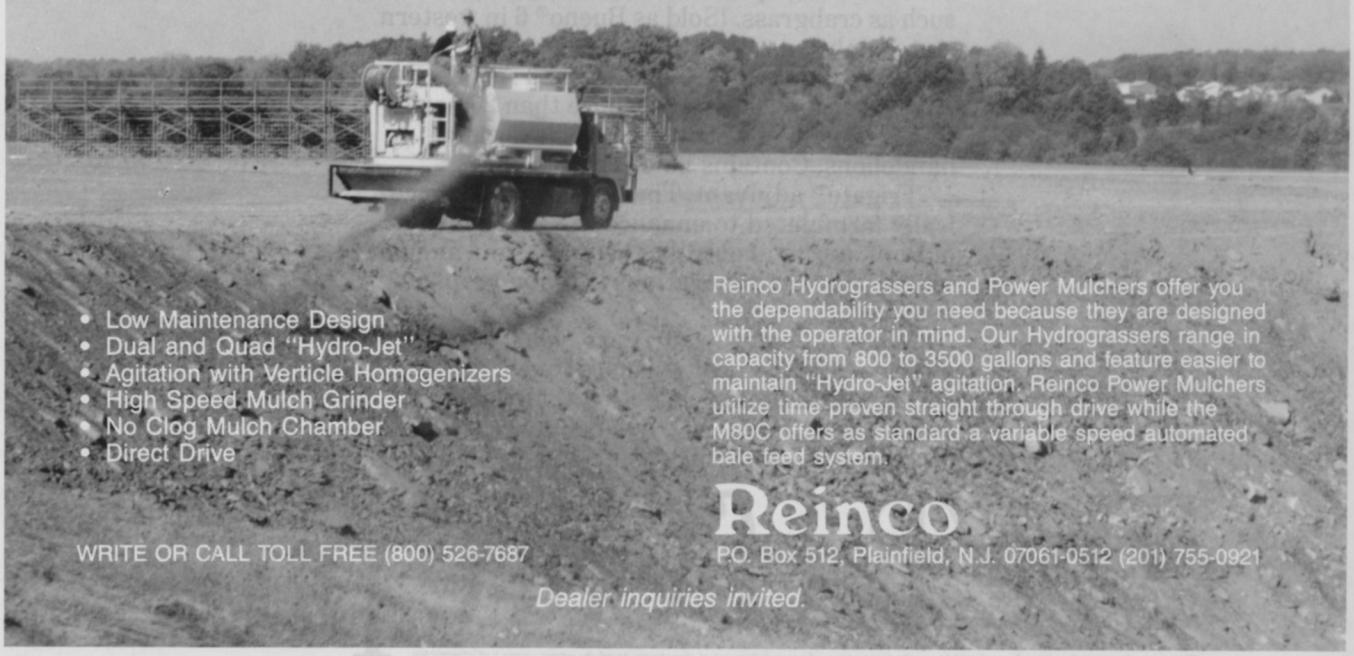

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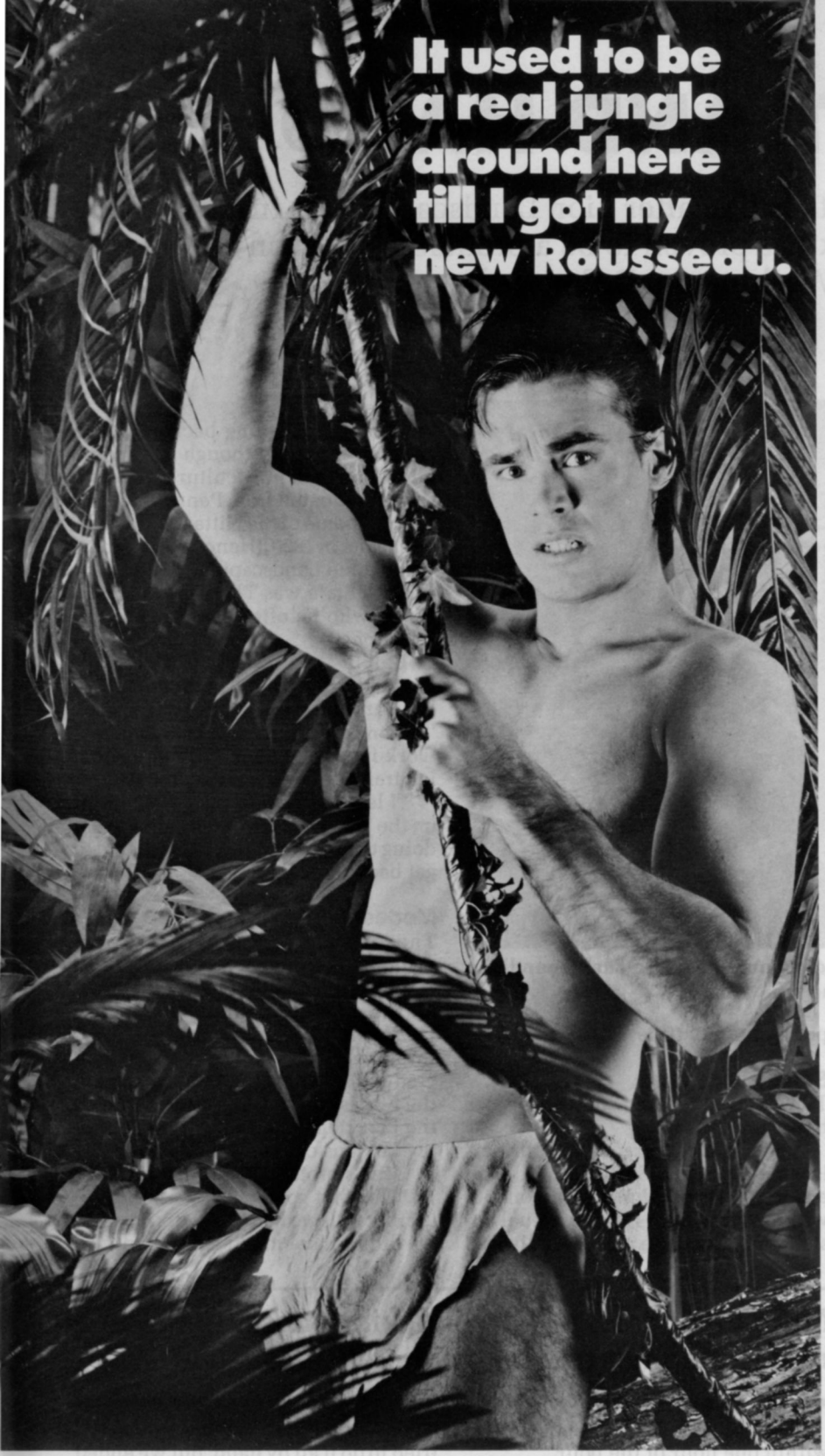

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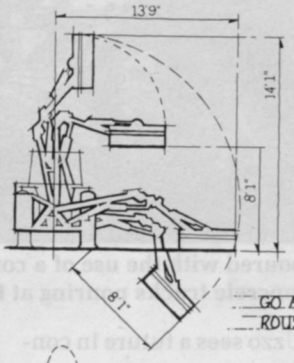

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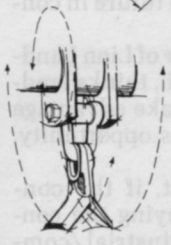

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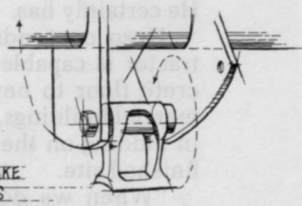
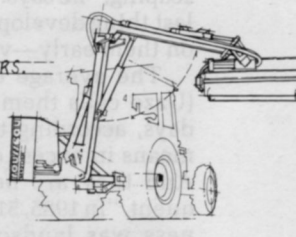


HEAVY DUTY BLADES MAKE SHORT WORK OF YEARS OF UNCUT GROWTH.



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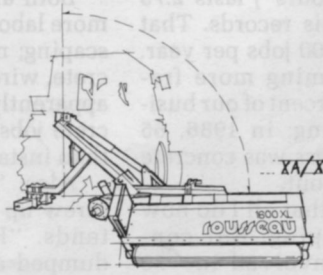

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FLAT AND HARD

That's what the concrete is like after Lion Landscaping has installed it. Concrete work has proven to be a profitable addition to this Washington, D.C.-area business.

by Jerry Roche, editor

Concrete is poured with the use of a concrete pump tank (in background). Notice two concrete trucks pouring at the same time.

Mike Uzzo sees a future in concrete.

Uzzo, owner of Lion Landscaping of Mt. Airy, Md., thinks landscape contractors can take advantage of this unique business opportunity. He certainly has.

Uzzo contends that, if the contractor is capable of laying the concrete floor to new industrial/commercial buildings, he has a head start in bidding on the landscaping of the finished site.

"When we do the concrete, we have no trouble getting the landscaping," he says. "Landscaping is the last thing developers think of, but I'm on them early—very early."

The average concrete-laying job (Uzzo calls them "pours") lasts 2.75 days, according to his records. That means in excess of 100 jobs per year. And they are becoming more frequent. "In 1985, 51 percent of our business was landscaping; in 1986, 65 percent of the business was concrete laying," Uzzo points out.

"It's to the point that all I do now is oversee landscaping. But concrete, I'm totally involved in—70 percent of my time."

Some similarities

The different types of contracting jobs have similarities.

Both, for instance, deal with perishable products. Shrubs, to take an example, usually have to be on-site within a few hours of the actual installation. Concrete must be delivered within one hour of the pour.

Both are labor intensive, too. But more labor costs are involved in landscaping; more equipment costs (concrete, wire, etc.) in concrete jobs. It is apparently more difficult to bid concrete jobs, but the job itself is easier than installing a landscape.

Also, "you really don't want to screw up a concrete job," Uzzo contends. "Having it broken up and dumped after it's dried is real, real expensive."

Uzzo has a strong background in concrete pouring, though his formal education is in horticulture.

He graduated from Penn State University, home of the Nittany Lion football team, in 1980. (Hence the business name, Lion Landscaping.) His advisor at Penn State was Thomas Watschke, Ph.D., who he often telephones with questions.

But...

"My father sells concrete, so I've been around it all my life," Uzzo says. "When I was in school, I did concrete work in the summer. All my on-the-job training has been in concrete.

"I learned how to read a blueprint on the job. And I knew deep down that doing the big floors is what I wanted to get back into."

Modest beginnings

The company was begun in 1980, from virtually nothing.

"I went door-to-door at night during the summers selling landscaping," Uzzo remembers. "One night, I got three small jobs—all from Penn State graduates. When I got out of school, the biggest thing was—bang!—taking the first step. I started working out of my LeMans coupe.

Uzzo's brother Peter is a partner.

"Our first good-sized job was a retaining wall we had to put up. Because we didn't have much equipment, we tried to do it all by hand, but we ended up calling a buddy who had a backhoe."

From that humble beginning, the business quickly propsered. "I always wanted to have my own business," Mike says. "I took business courses in college, and I used to sit in on concrete courses. So I knew that all the money we made we had to put right back into the company. We bought very slowly." *continued on page 44*

More labor costs are involved in landscaping; more equipment costs in concrete jobs.

Some of life's best lessons are learned in the school of 'soft knocks'

The young man on the left will fall several times before he hits his first home run. The young man on the right wants him to have the advantage of falling on real turf.

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CONCRETE *from page 42*

Mike Uzzo, concrete merchant, on the way to another job.

Mike's wife Mari, a Penn State graduate with a degree in finance, is the company's bookkeeper.

"Peter is mechanically inclined," Mike observes. "I'm more customer-oriented. We complement each other. But at one point, the books were flat-out burying me. So we brought Mari into the picture. Take me and my brother, plug her in there, and you're talking about everybody complementing in all directions."

Even Uzzo's father enters the big picture. "He's been very, very instrumental in drumming up business," Mike admits. "He's selling concrete and the people are always asking him if he knows any concrete contractors. 'Yeah, my sons,' he tells them."

Most of the company's business is in Montgomery and Frederick counties (Maryland) and Washington, D.C. proper. Twelve employees handle jobs like the White House (where Lion installed topsoil and sod at a new gate) and the Square 37 Hyatt Regency in Georgetown (a $79,000 job). When there's a lot of concrete-laying to be done, the payroll expands to 20.

"When we started out, we were 100 percent residential," Uzzo notes. "Now, we are 80 to 85 percent commercial/industrial. And most of the homeowner work is in the Potomac area in Maryland—big, nice jobs."

A nursery, too!

Besides the nursery holding 3,000 to 4,000 trees in Mt. Airy, Lion Landscaping also lists pick-up trucks, a backhoe, an International 1900 DT, two trailers, two four-wheel-drive Kubotas, a Ford F-100 and a tree spade as assets.

Yes, the company installs massive concrete floors. But it also does driveways, sidewalks and patios. The company retains its original landscape design/build business and also hydroseeds with a Finn 1500-gallon hydroseeder. But growth remains slow—by design.

"It didn't take me long to figure out that the more employees, the more headaches," Uzzo says. "I'm as big as I want to get. I don't need any more headaches.

'It didn't take me long to figure out that the more employees, the more headaches.'

—Mike Uzzo
Lion Landscaping

"I also don't have the overhead of the big guys. Man, you get that big and it's like a big Pac-Man game: you've got to keep feeding!"

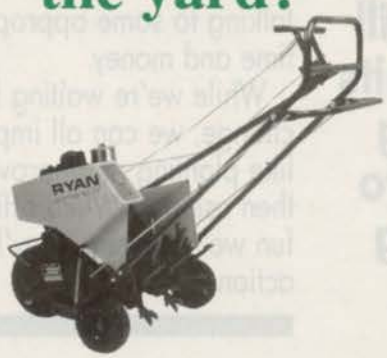
Thus, Lion Landscaping doesn't go after the "big" jobs. "Working with the big guys downtown was such a headache. They push you so they can get done quickly. Ruppert, Chapel Valley—companies like that go after the big jobs. That's the kind of job they're geared for. I'm not geared for them."

Mike Uzzo, however, remains content with that philosophy.

"We hop back and forth: concrete, landscaping, hydroseeding. Hey, I'm happy." **LM**

Circle No. 103 on Reader Inquiry Card

What makes more money by the yard?



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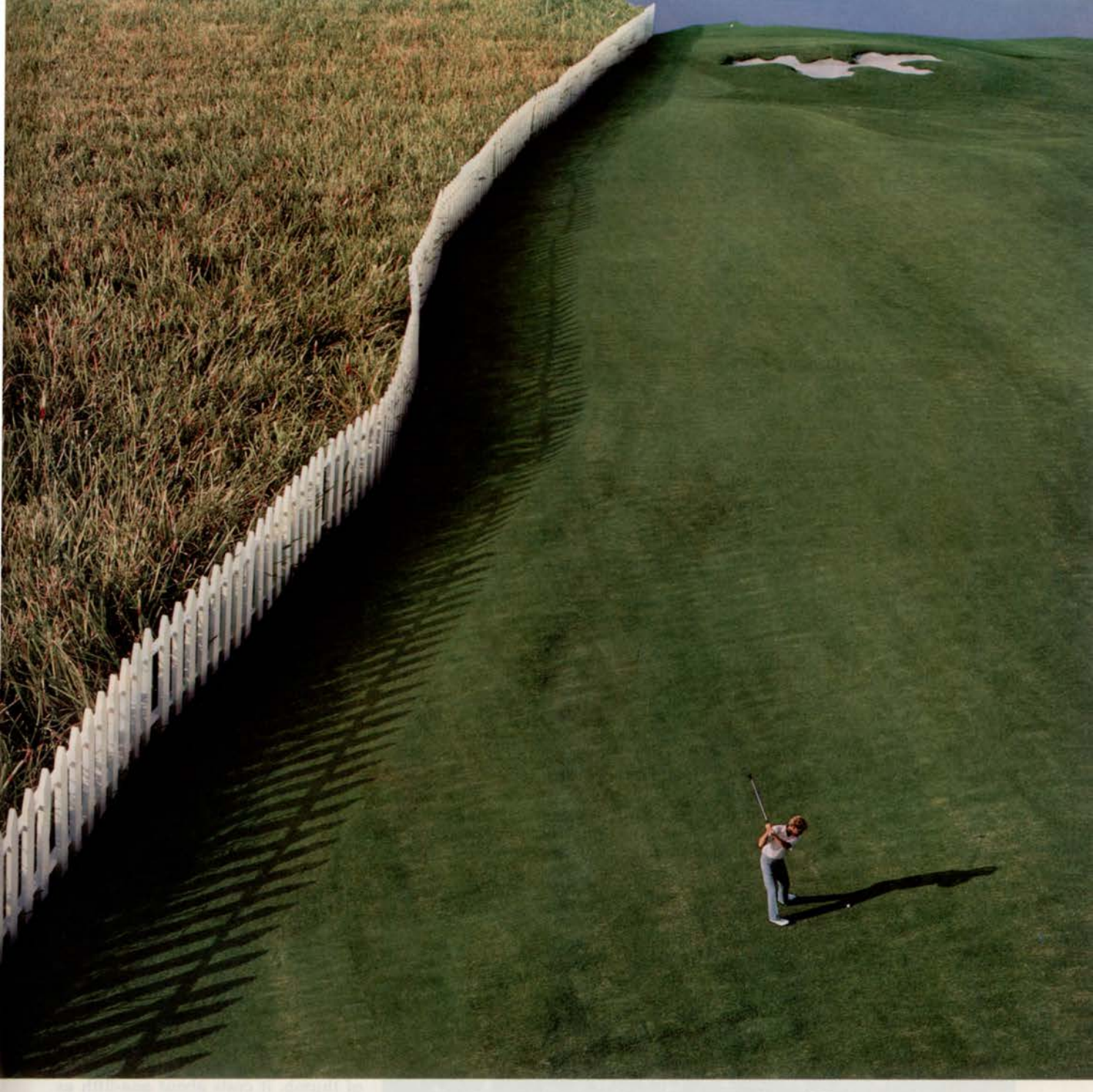

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Thorny flora makes a good-looking fence

If the old adage is true that good fences make good neighbors, then a natural, living alternative to the traditional wire, wood, or block fence may give you great neighbors.

This new idea in fencing is called the *Living Fence* and it's marketed by Barrier Concepts, Inc., of Oak Ridge, Tenn. It is a hardy, rapid-growing plant that requires minimal maintenance yet is capable of quickly becoming a formidable barrier fence.

The plant was introduced to the American market two and one-half years ago and has been successfully maintained in in a wide variety of climates, including California, Idaho and Florida.

Nicknamed "PT" for "pain and terror," the plant is an import from China. Its exact identity remains a secret as the company seeks to to protect its import rights.

Beware of its thorns

The Living Fence is described as a hedge-like plant that shows white spring blossoms every third to fifth year. It also offers aromatic fruit in the fall and year-round greenery. To date it has been marketed most successfully to military installations as well as commercial, homeowner and low rental properties.

One of the reasons the plant makes an effective barrier is its three- to five-inch stout thorns, which are complemented by stems that are so tough an intruder would need a bolt cutter to get through them. In fact, a company spokesman said the plant is so strong that, in its mature state, it can actually stop a one-ton vehicle.

The Living Fence is so strong that, in its mature state, it can actually stop a one-ton vehicle.

The normal growth rate of the Living Fence planted in a warm climate is about 15 to 30 inches annually. In colder climates it will grow about 12 to 18 inches a year. It can reach heights in excess of 20 feet or, if trimmed regularly, will form a thick, virtuall impemetrable brush.

The plant needs only three inches of water a year to survive, but additional water will contribute to its growth potential. It can be trimmed and shaped to be an aesthetically-pleasing barrier, as well as one that can stop people, animals and—if necessary—vehicles.

Thorns as long as six inches are part of the reason why the plant is nicknamed "PT," for "pain and terror."

Data shows that the Living Fence can thrive regardless of heat stress, excessive moisture, drought stress or cold temperatures. In addition, the plant has proven to be disease- and insect-resistant.

Cheaper than chainlinks

The cost of the Living Fence will vary according to the maturity of the plant and the number needed, but as a rule of thumb, it costs about one-fifth as much as what you're likely to pay for a chainlink fence. A 12- to 18-inch plant is priced at $5.50.

For that reason, this hardy, natural barrier appears to be a fair deal, especially if a pleasant appearance is as important a consideration as effective security. Therefore, it's a plant that is likely to prove popular wherever intrusion has to be controlled but where people want something nice to look at and enjoy.

For additional information about the Living Fence, write Barrier Concepts, Inc., at 701 Scarboro Rd., Suite 2020, Oak Ridge, TN 37830; or phone them at (800) 356-5021.

—*Stephanie Slahor* **LM**

The Living Fence is a bushy plant from China that will grow up to two feet a year in practically any climate. It's stems will become so strong that a bolt cutter would be needed to get through them.

EVENTS

DECEMBER

14-16—Desert Turf and Landscape Conference, Tropicana Resort and Casino, Las Vegas, NV. Contact: Bob Morris at (702) 731-3130.

JANUARY

4-6: Mid-Atlantic Nurserymen's Trade Show, Baltimore Convention Center, 1 West Pratt Street, Baltimore, MD 21201. Contact: Mid-Atlantic Nurserymen's Trade Show, Inc., PO Box 314, Perry Hall, MD, 21128.

7-10: Grower Expo '89, Pheasant Run, St. Charles, IL. Contact: GrowerTalks Magazine, PO Box 532, Geneva, IL 60134-9912.

9-11: Cornell Cooperative Extension Turfgrass Short Course, Cornell University, Ithaca, NY. Contact: Joann Gruttadaurio, extension associate, (607) 255-1792.

9-11: Maryland Turfgrass '89, Baltimore Convention Center. Contact: Dr. Tom Turner, University of Maryland, (301) 454-3716.

Wisconsin Turfgrass Association Annual Conference, Jan. 10-11, 1989;Pewaukia (Wisc.) Country Inn. Contact: Wayne Otto, Box 458, Mequon, WI 53092; (414) 242-0142.

10-11: Virginia Professional Horticulture Conference and Trade Show, Virginia Beach Pavilion. Contact: Jeff Williams, VPHC, PO Box 6291, Virginia Beach, VA 23456; (804) 487-4988.

10-12: Pacific Coast Nursery Industry Seminar, California Polytechnic State University, San Luis Obispo. Contact: Paula Schaeffer, California Association of Nurserymen, 1419 21st St., Sacramento, CA 95814; (916) 448-2881.

11-13: Eastern Pennsylvania Turf Conference and Trade Show, Valley Forge Convention and Exhibit Center, 1200 First Ave., King of Prussia, PA. Contact: Dr. Thomas Watschke, Penn State University, Department of Agronomy, 405 Agric. Admin. Bldg., University Park, PA 16802; (814) 863-1613.

12-13: Rocky Mountain Regional Turfgrass Conference, Lory Student Center, Colorado State University, Fort Collins, CO. Contact: Dr. Tony Koski, Department of Horticulture, Fort Collins, CO 80523; (303) 491-7070.

13-15: Sports Turf Manager's Association Annual Meeting and Conference, Dodgertown, Vero Beach, FL. Contact: Melissa, (714) 981-9199.

15-18: IPM Short Course, University of Maryland, College Park, MD. Contact: Lee Helman, (301) 454-7130.

15-18: The 41st Annual California Weed Conference, Red Lion Inn, 222 N. Vineyard, Ontario, CA 93764; (714) 983-0909. For more information or to register contact: Cooperative Extension, University of California, (209) 488-3285.

30-Nov. 2: National Institute on Park and Grounds Management annual educational conference, Omni International Hotel and Expo Center, Orlando, Fla. Contact: Nancy Abel, National Institute, P.O. Box 1936, Appleton, WI 54913; (414) 733-2301.

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Circle No. 129 on Reader Inquiry Card

PRODUCTS

Three new Grasshoppers feature hydrostatic drive

Three new direct drive hydrostatic direct drive models have been added to the company's line of zero-turn-radius outfront mowers.

A result of Grasshopper's collaboration with Eaton Corporation, the Gemini/Eaton direct drive system is designed specifically for turf mowing applications.

All systems and engine combina-

tions are designed to enhance productivity and ensure ample power in demanding commercial applications.

A dual-level control system makes for easy steering, speed, turning, braking and instant forward and reverse capability.

Zero-turning radius and outfront deck design allow operators to precisely mow around and between obstacles.

A complete line of optional atachments are available for each of the 718 Series Models.

Circle No. 190 on Reader Inquiry Card

Zero turning radius big feature for 1989 models

Dixon Industries' line of zero turning radius riding mowers will now contain six models, with the addition of the ZTR 304 and ZTR 361.

The 304, Dixon's first steel-bodied

mower, makes a 30-inch cut, and is powered by a 10-hp Briggs & Stratton engine.

The 361 features a 36-inch deck, a 12-hp Briggs & Stratton engine, and an electric blade clutch.

Other models range from 12-18 hp , and all feature zero turing radius and fingertip control.

Accessories include a catcher, tine rake, snowblade, tire chains, wheel weights and canvas mower cover.

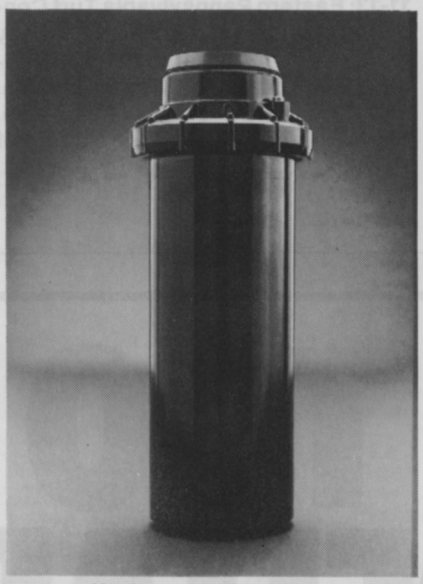
Circle No. 191 on Reader Inquiry Card

High-rotation sprinkler quick, covers lightly

Hunter Industries has introduced the I-42 sprinkler, designed "for irrigation situations where a fast, light application of water is desired."

The gear-driven model can be used for syringing golf greens and light irrigation of clay tennis courts, skinned baseball diamonds and horse race tracks. According to Hunter, the sprinkler also works well to control frost.

Its 4-inch pop-up stroke incoro-



rates all the standard features of Hunter's Institutional Series, including a safety-cushioned rubber cover, locking body cap, and slip clutch protected drive sytem. An interchangeable nozzle-stator set supplied with each sprinkler allows the discharge rate to be adjusted from 6.5 GPM to 25.8 GPM. The I-42 is available in 17 fixed arcs of coverage and a full circle.

Circle No. 192 on Reader Inquiry Card

18 horses supply power for hydrostatic riding mower

An 18 hp, twin cylinder Kohler engine provides the power for Scag's new, hydrostatic riding mower, available with a 61- or 72-inch cutting deck.

Scag says an exclusive hydraulic cooling reservoir offers twice the cooling surface of any in the industry.

A 5-gallon polyethylene fuel tank and oversized tires are standard features.

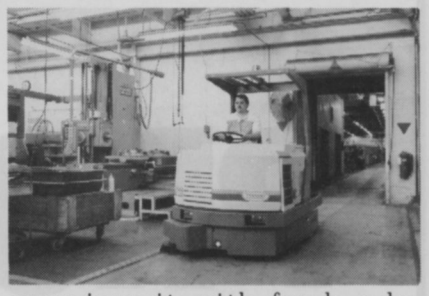
Circle No. 193 on Reader Inquiry Card

Sidebrush main feature of Tennant mid-size scrubber

The 528—Tennant's latest mid-size scrubber—features an optional retracting sidebrush for easy cleaning of walls, pallets, machines or racks.

The sidebrush applies solution, scrubs and closely follows the contour of eneven edges as it cleans. For safety, the brush retracts upon imact and in reverse.

Also available is a Solution Recycling System that cleans up to four hours without refills, and, according to Tennant, covers up to six times more area than conventional models. The system filters and clarifies scrub water, then re-



energizes it with fresh solution.Maximum speed for the 50-inch scrubber is 72,900 square feet per hour.

Circle No. 194 on Reader Inquiry Card

Model 2120 most powerful

Ford New Holland calls its Model 2120 the most powerful tractor in its new seven model line of diesel tractors.

The 34.5 hp four cylinder, direct injection engine handles a wide range of agricultural, commercial and industrial jobs. A 12-speed manual transmission is standard.

Circle No. 195 on Reader Inquiry Card

Self-steering sulky makes for easy mower conversion

Exmark's self-steering sulky attaches in seconds and turns any Exmark intermediate mower into a riding mower.

Designed to keep operator controls

within easy reach, the sulky also features running board footrests, a cushioned seat and a wide wheel base.

A low center of gravity provides stability on slopes, and the steering mechanism design prevents jacknifing.

Circle No. 196 on Reader Inquiry Card

3-point hitch cutter head is good for all ground types

The new 3-point hitch cutter head from Teledyne Princeton cuts through soft, hard or rocky ground without difficulty.

A specially angled cutter head cuts from 12 to 24 inches, and is ideal for renovating lawns, cutting flower beds or other landscaping projects.

Weight is 1200 pounds, and operates behind any small tractor equipped with a 3-point hitch and tractor hydraulics.

Circle No. 197 on Reader Inquiry Card

Verti-Groove by Turf-Tec easy on the course

Verti-Groove, the latest aerifier from Turf-Tec, brings thin slices of soil to the surface without materially disturbing the turf.

Designed to renovate and maintain any turfgrass area, the Verti-Groove relieves soil compaction, removes thatch, layers in the soil and improves drainage. Turf-Tec says the Verti-Groove will remove soil from one to six inches deep.

The Verti-Slicer attachment cuts deeply through the turf without disturbing soil, ideal for aerifying turf on rocky ground, and 4½ deep root pruning promotes new roots.

Circle No. 198 on Reader Inquiry Card

TURF VAC® sweeps both turf and pavement

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Front-mounted blower. Easy manual control of left/right/front on-the-go discharge.

COREMASTER CM-4
Designed to lift sand cores off golf greens and tees without disturbing grass. Sweeps 48″ wide.

MODEL FM5-LD
5 cubic yard hopper lifts to dump at 96″. Smooth vacuum action sweeps 60″ wide.

Circle No. 128 on Reader Inquiry Card

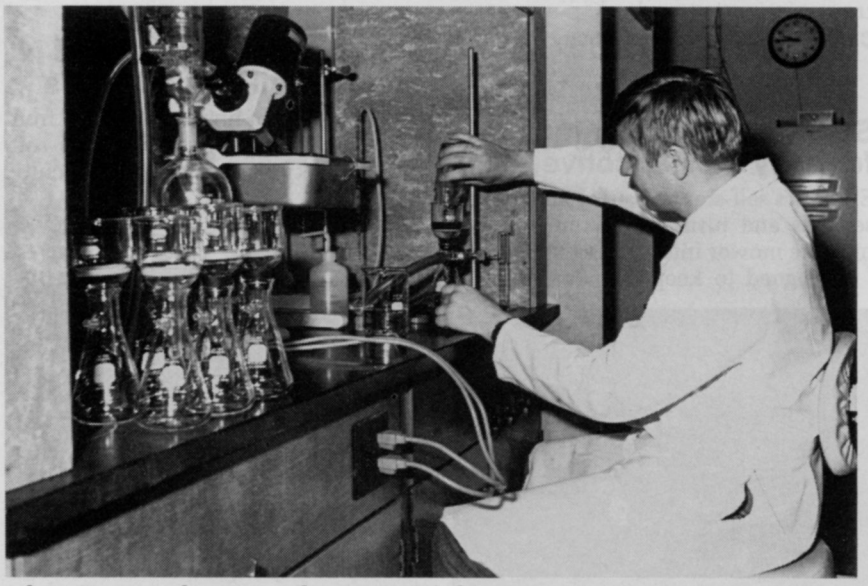
Microbes and turfgrass pesticide efficiency

by Harry D. Niemczyk, Ph.D., OARDC

Have you ever wondered what really happens to the pesticides applied to turfgrasses? How or by what means are they eventually broken down?

Nearly all pesticide degradation proceeds by the action of microbes such as fungi, bacteria and actinomycetes. Action by these organisms leads to the pesticide's ultimate elimination from the turfgrass environment. Were it not for microbial biodegradation, residues from pesticides would simply accumulate, increasing environmental hazards.

Microbial breakdown occurs most readily in situations rich with high populations of microbes. These microbes are abundant in the upper levels of turfgrass soils and super-abundant in thatch. Pesticides applied to turfgrasses reach the aerial part of the plant first, then the thatch and finally the soil. If there is no thatch, the material that misses the plant hits the soil. The capacity of microbes to degrade pesticides that reach the thatch and/or soil helps determine the amount and duration of remaining residues to control a target pest.



Adam Krause, chemist at the OARDC/Ohio State University Turfgrass Pesticide Laboratory, Wooster, Ohio, extracts residues in samples from current field studies. The vertical movement and accelerated degradation of six herbicides and nine insecticides applied to turf with and without thatch is being studied.

Degradation rate

Normally, degradation proceeds slow enough to allow control of the pest. However, an increasing amount of scientific evidence shows that the capacity of these microbes to break down pesticide residues is, in fact, a double-edged sword.

Following repeated exposure to a pesticide, the microbes can adapt to the remaining residues by using them as an energy (carbon) or nutrient source. With abundant nutrients (the pesticide), the microbe population increases rapidly, resulting in abnormally fast pesticide disappearance. This rate is much faster than when the microbes were first exposed to the chemical. It is known as "enhanced or accelerated biodegradation."

In the field, accelerated biodegradation means a significant change from previously consistent effectiveness to ineffectiveness. However, the poor performance of a pesticide must not immediately be attributed to accelerated biodegradation. Improper rate, poor distribution, incorrect timing of application and development of resistance are but a few of the other reasons for poor performance. Nevertheless, when a distinct, consistent change in effectiveness occurs—particularly against pests such as grubs or crabgrass—accelerated biodegradation of the pesticide is a strong candidate as the causal factor.

Not a new phenomenon

Accelerated biodegradation of pesticides by soil microbes is not a recent discovery. It was first reported for 2,4-D, 2,4,5-T and MCPA about 40 years ago. Since then, published laboratory and field studies have demonstrated this phenomenon with herbicides such as EPTC, vernolate, butylate, metolachlor and diphenamid. The same phenomenon has been shown for soil-applied carbamate insecticides, such as aldicarb, carbofuran and carbaryl, and the organophosphates diazinon, isofenphos, fensulfothion and ethoprop.

Enhanced degradation of the fungicide iprodine, currently used to control certain turfgrass diseases, was reported in 1986. In all these cases, accelerated biodegradation followed repeated application of the pesticide to the same site.

Studies conducted in 1986 and 1987 by the Ohio Agricultural Research and Development Center confirmed that after four successive years of applying Oftanol (isofenphos) to control grubs on the fairways of one golf course, residues from a fifth application dropped from 9 ppm (parts per million) on the day of application to non-detectible levels seven days after application. Laboratory tests confirmed that accelerated degradation was occurring.

Tests on thatch and soil from three other golf courses where Oftanol had been used successfully for at least two consecutive years, but gave poor results when applied a third time, tested positive for accelerated degradation of isofenphos.

Studies at Ohio State are continuing, but preliminary results indicate that microbes in the Oftanol-treated turf apparently have the capacity for accelerated degradation of some other insecticides used for grub control.

Research needed

The role of accelerated biodegradation as an important cause for the failure of previously effective soil pesticides used in agriculture is generally established in scientific literature. But research has only just begun on accelerated degradation of insecticides used on turfgrasses. To my knowledge, no investigations dealing with the herbicides or fungicides used in turfgrass management are in progress.

Considering the range of pesticides used on turfgrasses (especially golf course greens), I believe accelerated biodegradation has a strong potential for explaining at least some of the reduced efficacy of turfgrass pesticides experienced in the past. **LM**

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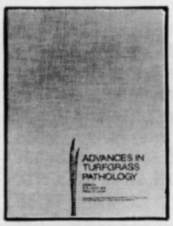

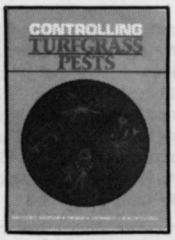

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Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky bluegrass in Minnesota, initial and field fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. **$27.95**

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New comprehensive guide provides the most up-to-date information available on the identification, biology, control and management of every type of turfgrass pest. Covers weeds, insects, animal pests and diseases in detail. Also provides information on cultural management practices: the establishment, care and renovation of low-, medium-, and high-maintenance turf areas. 50 color and 400 black and white photographs. **$32.00**

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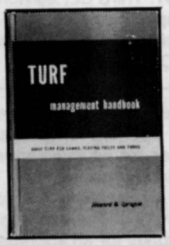

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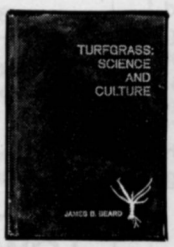

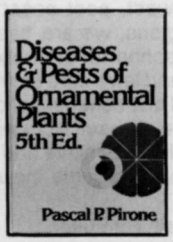

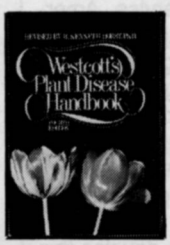

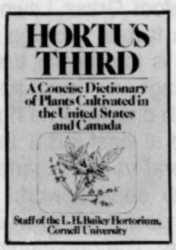

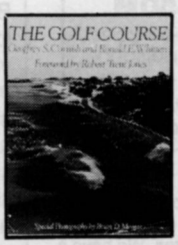

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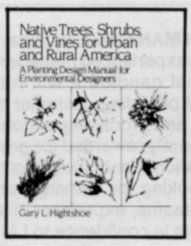
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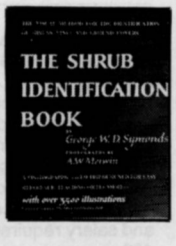

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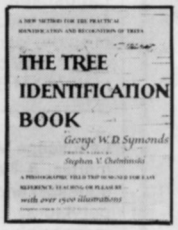

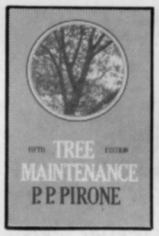

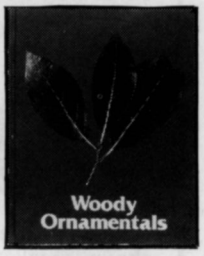

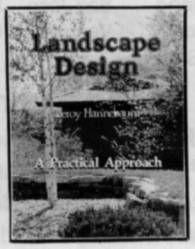

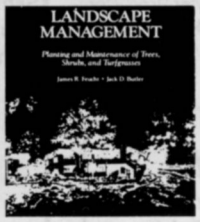

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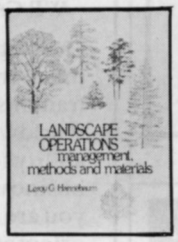

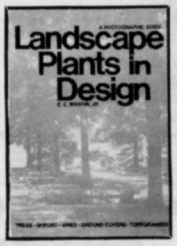

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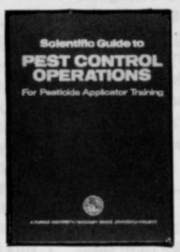

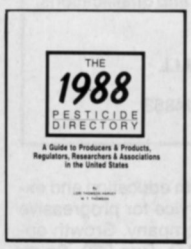

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TURFGRASS '89

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PROBLEM MANAGEMENT

by **Balakrishna Rao,** Ph.D.

Managing anthracnose disease

Problem: *We are seeing quite a bit of disease in the lawns. Based on foliar symptoms, we believe it is anthracnose disease. It has been noticed on Kentucky bluegrass, fine fescue and ryegrass. Affected blades tend to die back and appear straw-colored with black fungal growth. Would you describe how to identify the anthracnose disease and its management state?*

Solution: Due to severe drought, heat and moisture stress, turfgrass diseases, including dollar spot, patch diseases, brown patch, pythium blight and anthracnose, have been reported from many geographical areas this year.

From your description of the symptoms, the problem could be related to either anthracnose or ascochyta blight disease.

To further diagnose these two diseases, use a hand lens and look for black fruiting bodies along the dying grass blades. The anthracnose fungus should appear fuzzy with a number of black hair-like structures around the fruiting bodies. Ascochyta fungus doesn't have these hair-like structures and the fruiting bodies will appear smooth on the affected blades.

To manage anthracnose disease, improve plant vitality through proper fertilization and watering. Application of fungicides such as Bayleton, Daconil or benlate should help manage the disease.

Fighting mole crickets in Florida

Problem: *Next spring we will be providing lawn care services in Florida. We know very little about mole crickets and their management there. We would appreciate your comments concerning their identification and control. (Florida)*

Solution: There are two common mole crickets in the South: changa mole cricket (*Scapteriscuns vicinus*) and southern mole cricket (*S. acletus*). Mole crickets are pests of most turfgrass in the Southeastern United States.

They seem to prefer Bermudagrass, bahiagrass, or centipedegrass. Their adults are 1 to 1½ inches long, gray to light-brown and have short, spade-like front legs adapted for tunneling. All stages feed on grass plants, primarily roots, and tunnel through the soil uprooting plants, which causes the turf to dry out and die. Damage is severe in newly planted turf.

In most areas, except southern Florida, there is a single generation. They overwinter as adults or when about two-thirds grown. Generally, they tunnel deep into the ground. In the winter during warm periods however, they can make some surface tunneling.

The southern mole cricket becomes active in spring and completes maturation, then flies and mates. Changa mole crickets complete their maturation starting in the fall (after September) and become active the following spring, fly and mate. They deposit eggs in chambers hollowed in the upper 12 inches of soil. Southern mole crickets lay eggs from March to September. Changa mole crickets lay eggs from March to July. Eggs hatch in two weeks and nymphs begin to appear about May.

Tunneling may decrease in spring as the old mole crickets die. Nymphs feed aggressively and cause extensive damage that becomes obvious by late July or early August.

Application of insecticides such as diazinon, Turcam, or Oftanol, followed by watering immediately to wash the insecticide to the target, is suggested to manage these pests. Both spring and late fall treatments are recommended. Reports also indicate that rolling loose turf in the spring will help keep roots in contact with the soil and hasten recovery.

Another management method is to use of baits containing concentrations of chemicals that are spread uniformly to bring the pest to surface. In this case, irrigate the area several hours before bait application to increase mole cricket activity. Do not water the area after spreading the baits. For best results, always read and follow label specifications.

The causes of yellowing needles

Problem: *What causes yellowing of needles on spruce trees? It seems to be localized on the east exposure of two trees that are standing alone. (Minnesota)*

Solution: Several different abiotic and biotic factors may be contributing to the yellowing of spruce needles. Although on-site and/or laboratory analysis is necessary to positively determine causal agents, you can consider the following contributing factors:

Drought. This year we have been seeing drought injury on a number of plants.

*Poor establishment.*After transplanting, it generally takes three to five years for most plants to establish.

Soil disturbance, root injury, or trunk girdling.

Soil contamination with herbicides.

Micronutrient deficiency. Determine the micronutrient needed through foliar analysis.

Excess fertilization. Particularly concentrated in random places around the root zone.

Fungal disease like cytospora canker and/or rhizosphaera needlecast disease. For cytospora canker look for bluish-white resin pitching on branches and trunk with purplish-brown needles. Disease progresses from lower branches upward. For rhisosphaera look for minute round fruiting bodies in a line along the purplish discolored needles. This disease also progresses from lower branches upward.

Air pollution. Although reportedly tolerant of ozone, most spruces are sensitive to other major pollutants. **LM**

Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Management, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

"Our mowers are the backbone of our business. We use only Buntons."
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"We run 16 crews with 80 people to provide the best care possible for large commerical properties," says Environmental Landscape Services president Jack Roberts. "We depend on our equipment to help us maintain our reputation as one of the best."

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